

CANADIAN GEOGRAPHICAL JOURNAL

FEBRUARY
1943

VOL. XXVI
NO. 2



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CANADIAN GEOGRAPHICAL JOURNAL

Published monthly by
The Canadian Geographical Society
at 2151 Ontario St. E., Montreal

Editor — Gordon M. Dallyn

This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustrations, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

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The articles in this Journal are indexed in the *Reader's Guide to Periodical Literature* which may be found in any public library.

The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1936.

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Address all communications regarding change of address, non-delivery of Journal, etc., to the publication office, 2151 Ontario Street, East, Montreal, Canada, giving old and new address. On all new memberships, the expiry date will be printed on wrapper containing starting number. This will constitute a receipt for subscription.

Membership in The Canadian Geographical Society is \$3.00 per year in Canada and other parts of the British Empire, which includes delivery of the Journal, postpaid; in United States, Mexico, France, Spain, Central and South America, \$3.50; in other countries, \$4.00. Make membership fee payable at par in Ottawa.

Member Audit Bureau of Circulations.

Special Representatives:

Ontario: F. A. Dallyn, 21 King Street, E., Toronto, (Tel. EL. 2863)
Quebec: F. A. Dallyn, 2151 Ontario Street E., Montreal. (Tel. FR. 1722)
Europe: Norah C. Perry, 5 Upper Dagnall Street, St. Albans, Herts., England

Entered as second-class matter at the Post Office, Montreal, Canada.

PRINTED IN CANADA



Foot of Mons Glacier, Banff National Park. The dark bands in the ice are caused by dust blown on the gathering ground of the glacier between snow-falls.

The talons of Crowfoot Glacier, near Bow Lake, Banff National Park



A large glacier five miles west of Kinbasket Lake, British Columbia, on the Big Bend Highway. The peak on the right is Trident Mountain, 11,000 feet above sea-level.

GLACIERS OF THE ROCKIES AND SELKIRKS

by A. H. LANG

WESTERN Canada provides some of the finest mountain scenery in the world, due largely to the glaciers and snowfields that crown the higher summits even in midsummer. The snow-capped Rockies, visible from great distances, have inspired generations of westbound travellers after their long trip across the plains. Alexander Mackenzie, the first white man to cross the Rockies, commented on their snow-covered summits, and they were known as the Glittering or Shining Mountains for some time before their present name was adopted.

Apart from their scenic qualities, glaciers have a most important place in the scheme of Nature, for they are responsible for much of the sculpturing of the moun-

ains. The sharp ridges and deep valleys of to-day were shaped thousands of years ago by vast glaciers of which the present ones are but shrunken remnants; this process is continuing on a restricted scale, and a knowledge of existing glaciers helps to interpret the origin of mountain forms. The recently completed Banff-Jasper and Big Bend Highways pass near many great glaciers which are thus made more accessible. The snowfields and glaciers of the Rockies are also becoming better known because of the increasing number of air passengers who fly over them, and because of the growing popularity of summer skiing. For these reasons a brief sketch of the different types of snowfields and glaciers, their origin, and their work, may

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be of interest. Examples have been chosen from the more accessible parts of the Rockies and Selkirks, in and near the national parks.

A glacier is a mass of ice compacted from snow and moving away from its place of accumulation by an extremely slow, plastic flowage. The formation of glacial ice is the ultimate climatic change observed as one climbs a high mountain. Toward the higher elevations the sub-alpine forest of spruce, fir, and pine becomes more and more stunted, ending in scrub at timberline, which is about 7,500 feet above sea-level in the southern Rockies. The scrub is succeeded by alpine meadows where brightly-coloured flowers follow the retreat of the melting snow. In high mountain tracts and in Polar regions more snow falls in winter than melts in summer, leaving large perpetual snowfields whose lower limit is called the snowline. The height of the snowline depends on the average yearly temperature and on the precipitation; it is at about 7,500 feet in the western Selkirks but rises to 9,000 feet in the eastern Rockies which lie farther from the Pacific and so receive less snow and rain. Snowfields and glaciers are therefore more numerous in the Selkirks and western Rockies than in more easterly ranges.

Mountain snow is dry and powdery, composed of exquisite, six-rayed ice crystals which entrap much air because of their feathery form. Some air is soon expelled by the pressure of overlying snow, and when thaws melt the surface the resulting water percolates through the lower snow and freezes again. This combination of compacting and freezing produces a coarse-

ly-granular snow called "névé", a term, like others to be used later, that is derived from the Alps where mountains and glaciers were first studied. The pressure increases as overlying snow accumulates, until all air is eliminated and the névé grains freeze together to form solid, bluish ice. The process is gradational, but for practical purposes a "snowfield" may be defined as a large, shallow accumulation of perennial snow with little névé or ice; a "névé-field" consists chiefly of névé; and the term "ice-field" should be reserved for the great sheets of almost stagnant ice, with relatively little snow and névé, which cap the summit of a range.

One or more tongues of moving ice generally issue from an ice-field, spilling slowly downward toward the valleys, the smaller lobes forming "mountain glaciers" and those that extend considerable distances down main valleys forming "valley glaciers". The movement of glaciers is not a glide of the mass as a whole but resembles very viscous flowage, as is shown by well-authenticated reports that climbers in the Alps have been trapped by falling in cracks or "crevasses" in the ice, and their refrigerated bodies have been melted out many years later at the foot of the glacier. The flow is caused partly by the pull of gravity and partly by the expansive force of water which freezes after filling cracks in the ice. The rate of flow has been measured accurately at several glaciers and is usually a few feet per year, but speeds of 70 feet per day have been recorded at some of the large Alaskan glaciers. The rate varies with the size of the glacier and the steepness of the slope, and is much



A snowfield in the Kananaskis Range
R.C.A.F. photo



A sea of snow and ice surrounds Mount Adamant near the Big Bend Highway. The principal crevasse or "bergschund" shows plainly near the heads of the glaciers in the right half of the photograph.

faster in summer than in winter.

Many mountain glaciers are formed independently of large ice-fields, accumulating in amphitheatres or "cirques", generally on the shady, northern slopes of high peaks and ridges. Smaller glaciers, commonly perched on steep rock faces, are called glacierets, hanging glaciers, or cliff glaciers. Where glaciers flow over very steep, uneven rock surfaces the ice is fractured into a series of wedges and pinnacles called "séracs", the whole assemblage constituting an "ice-fall". An ice-fall of a different type is formed where a glacier reaches a precipice and detached ice-blocks drop over, to freeze below into a "reconstructed glacier".

Frost and glaciers are twin agencies largely responsible for the shaping and gradual destruction of mountains. During the day water from rain and melting snow fills myriads of small fissures in the rocks; this water expands when it freezes at night, thus splitting off rock fragments. Nowhere is this process so active as at the heads of those glaciers that occupy amphitheatres. There, in summer, a great crevasse called the "bergschund" separates a small amount of stationary ice and snow from the moving glacier. The bergschund permits an abundance of melt-water to reach the rocks below, where, in consequence, a maximum of frost-quarrying occurs. The fragments so loosened are frozen into the moving ice and carried away, causing the amphitheatre to be

quarried slowly downward and toward the crest of the ridge. Where three or more such glaciers have cut back toward a common point a pyramid-shaped peak or "horn" is left at the centre, one of the finest examples being Mount Assiniboine about twenty miles south of Banff.

Rock debris from the head and sides of a glacier is carried along by the moving ice and deposited as gravel-heaps when and where the ice melts, the term "moraine" being applied to this material both during transportation and after deposition. The debris that collects along the sides of a glacier constitutes a "lateral moraine," and when two glaciers meet, two lateral moraines join to form a "medial moraine" extending as a dark band down the centre of the united glacier. Rock fragments frozen in the bottom and sides of a glacier act like bits set in a giant, slowly-moving tool rasping the bedrock to rock-flour. This pulverized rock causes the milky appearance of streams fed by glaciers, and various stages of clarification are responsible for the delicate shades of jade and emerald green reflected from mountain lakes. Rock-flour is deposited on lake bottoms as clay, in plainly-marked annual layers which can be counted like tree rings to date the age of the deposits.

Thus the destructive forces of glaciers do much toward shaping the higher regions, and the spoil from this sculpturing is deposited at lower levels as gravel and clay. Another important function of glaciers is

in preventing moisture from being locked up indefinitely above the snowline. If it were not for glaciers and the relatively small amount of snow swept down by avalanches, snowfields would grow ever larger and larger, returning only part of their moisture to the clouds by direct evaporation. Instead, rivers of ice carry moisture from above the snowline down to warmer levels where they melt to become rivers of water, and glaciers thus become a vital link in the cycle of precipitation from clouds to sea and back to clouds again.

Careful study of moraines, layered clays, and rocks showing glacial planing and polishing has established the fact that a great Ice Age began about one million years ago. At that time the climate gradually grew colder until the average annual temperature was at least 9°F. below the present average. Snow and ice gradually accumulated at the expense of the oceans until a thick mantle of ice covered most of Canada and the northern part of the United States, and parts of other continents. The Ice Age was not uniformly cold, for the geological record shows that the ice melted away at least once during an intervening warm period and then re-accumulated, as colder temperatures again prevailed. These immense glaciers began to melt for the last time about 36,000 years ago and the last Ice Age of the continent as a whole is considered to have ended 9,000 years ago when the climate warmed approximately to that of to-day. Since that time ice-fields and glaciers have shrunk very slowly to their present size, leaving countless moraines, abandoned amphitheatres, pyramid peaks, and many other glacial phenomena as testimony of their former greatness. Thus the glaciers and ice-fields of to-day, numerous and impressive as they still are, cannot compare with the immense ice accumulations of the past. The long period over which the ice has been receding and the fact that the rate has increased during the past twenty years leads to the assumption that the Ice Age is definitely passed, but it is possible that the present is but another inter-glacial period and that at some time in the distant future the climate will again become colder by the few degrees necessary to cause the ice to advance slowly but inexorably down the northern part of this continent.

The Rockies are the eastern mountain system of the Canadian Cordillera and they extend for 900 miles northwestward from

the International Boundary, finally dying out beyond the Liard River. The crest of the highest range forms the Continental Divide which separates the Pacific drainage from that of the Arctic and Atlantic. This divide is also the boundary between the southern parts of Alberta and British Columbia.

The Rockies are divided conveniently into three sections by the two transcontinental railways. Because of the warmer climate in the group south of the main line of the Canadian Pacific Railway, these mountains contain fewer and smaller snowfields and glaciers than their more northerly counterparts. In Waterton Lakes Park at the 49th Parallel all the glaciers have melted, but their former presence is well shown by numerous abandoned cirques, glacial lakes, horns, and other signs of mountain glaciation. Similar features abound in the mountains between the Crowsnest Pass and the main line of the Canadian Pacific Railway, and these mountains have the additional charm of containing numerous, comparatively small, mountain glaciers such as those of the Assiniboine group and of the mountains traversed by the Banff-Windermere Highway. This road leaves the main highway at Castle Mountain and crosses the Continental Divide by way of Vermilion Pass, which is immediately south of a fine amphitheatre where Boom Glacier clings as the last remnant of a valley glacier that once must have reached the Bow Valley. From Vermilion Pass the highway extends southward through Kootenay Park, flanked by many small mountain glaciers.

One of the most frequented parts of the Rockies is that traversed by the Canadian Pacific, which follows the Bow River from the foothills to Lake Louise, then climbs the Continental Divide in the Kicking Horse Pass (5,339 feet), and descends the Kicking Horse Valley to Golden in the Rocky Mountain Trench. Within sight of this section of the railway can be found examples of almost every type of glacier and every type of glacial landform. The carving of the Bow Valley was begun by the slow erosion of an early Bow River that existed before the Ice Age. Later, a great glacier forced its way down the entire length of the valley, deepening and widening it. As this glacier melted, it left in the valley-bottom a moraine of gravel which is being removed slowly by the present Bow River, a series of gravel benches or terraces being left as the river changes

its course. Because some of this glacial gravel is cemented more than the rest, the edges of these benches weather into pillars called "hoodoos", which are one of many natural phenomena near Banff. The smaller tributaries of the Bow flow through "hanging valleys" left perched because of the deepening of the Bow Valley by the ancient glacier just described. At the heads of these hanging valleys there are always one or more amphitheatres carved by ancient mountain glaciers and now occupied by ponds or "tarns" which are one of the chief attractions of the mountains. Many of the hanging valleys contain larger lakes, generally held in place by moraines which form natural dams across the valleys. Of these, Lake Louise, Moraine Lake, Lake O'Hara and Emerald Lake are recognized as four of the most beautiful mountain lakes in the world. The most celebrated is Lake Louise, named after Princess Louise, Duchess of Argyll. A little over a mile long, it lies near the entrance of a large amphitheatre walled by glacier-clad peaks rising 6,000 feet above its iridescent surface. At the head of the basin Victoria and Lefroy Glaciers meet and flow together toward a great precipice over which, at times, huge ice-blocks tumble to form a reconstructed glacier below. The surface of the lake mirrors the blue of the sky, the white of snow and ice, grey of the rocks, and the green of the forest in colours constantly flashing from shade to shade as the light changes. This incomparable view has caused many experienced travellers to write of Lake Louise as the most perfect scenery in the world.

Of the Rockies north of the Canadian Pacific Railway, the eastern ranges near Banff do not contain many glaciers or perpetual snowfields because of their drier climate. Travelling westward the first large

At top:—Boom Glacier, 25 miles west of Banff, clinging to the head-wall of a great cirque, is the remnant of a huge glacier which once filled the entire basin.

R.C.A.F. photo

Centre:—End of ice tunnel, Victoria Glacier, near Lake Louise. Sub-glacial streams rush from such tunnels on warm days when the surface of the glacier is melting. Water descends through crevasses and enlarges the tunnel partly by melting and partly by the abrasive action of rock fragments in the stream.

Bottom:—Cliff glacier on Mount Victoria above Abbot Pass, Banff National Park





Ascending a snow ridge on Mount Victoria, near Lake Louise, Banff National Park.



Mount Athabaska and Columbia Ice-field from shoulder of Mount Castleward, Banff National Park, Alberta

glacier is seen on the west side of Castle Mountain. A few miles north of the Kicking Horse Pass the Waputik Ice-field marks the first of a long series of great ice-fields astride the Continental Divide, visible from the Banff-Jasper Highway which leaves the railway line at Lake Louise station. The second of these ice-fields is the Wapta, followed by the Freshfield which sends a magnificent valley glacier to feed the Howse River. Next comes the Lyell Ice-field with its satellites — the first Canadian glacier group to be described in detail, having been visited in 1858 by Dr. James Hector of the famous Palliser Expedition. Each of these ice-fields is a gathering ground for many large and spectacular glaciers.

About midway between Lake Louise and Jasper the Columbia Ice-field sprawls across the boundary between Banff and Jasper National Parks. It is the largest ice-field in the Rockies, but because of its former inaccessibility it was, until quite recently, known only to a few surveyors and mountaineers. In 1938 the Alpine Club of Canada established a temporary camp in the vicinity for exploring the ice-field and surrounding peaks, and the névéslopes of the ice-field have also attracted parties of ski enthusiasts in summer. The completion and opening for travel of the Banff-Jasper Highway in 1940, however, makes it possible for the visitor to drive north from Banff and Lake Louise or south from Jasper to the edge of the

Crossing the ice ridges of Athabaska Glacier, Jasper National Park.

The foot of Athabaska Glacier, at the head of Sunwapta River, Jasper National Park





Athabaska Glacier, Columbia Ice-field, showing Snow Dome and edge of Columbia Ice-field in the background, Jasper National Park.



Mount Athabaska and Glacier from Banff-Jasper Highway, Jasper National Park

Athabaska Glacier, which is one of the main flows from the Columbia Ice-field. The construction of this road has brought the ice-field into prominence as a tourist attraction.

The Columbia Ice-field proper is an irregularly-shaped thick mass of ice 10,000

feet above sea-level, capping the Continental Divide for a distance of about twenty miles. Including its glaciers, the Columbia Ice-field covers an area of about 150 square miles. It is the gathering ground for several of the largest ice-flows in the Rockies, including the Athabaska and

Right:—Looking north across the Columbia Ice-field. In the centre background is the Snow Dome (11,340 feet), the tri-oceanic divide of the North American continent. The distance from the ridge at the left foreground to the Snow Dome is about nine miles.

Below:—An edge of the Columbia Ice-field as seen from a point on the Banff-Jasper Highway. The huge piles of gravel in the foreground are the moraines of glaciers that have melted away.





A large crevasse in Illecillewaet Glacier, Glacier National Park, British Columbia

Columbia Glaciers which feed the Athabaska River, a tributary of the Arctic Ocean; the Saskatchewan Glacier which feeds the North Saskatchewan River, entering the Atlantic through Hudson Bay; and several unnamed glaciers on the west side of the divide, feeding tributaries of the Columbia River and so being part of the Pacific drainage. In all, thirty glaciers emanate from this great storehouse of moisture. The ice-field culminates in the Snow Dome, an enormous, gently-sloping peak completely covered with ice and snow, rising to an elevation of 11,340 feet. This point is known to geographers as the hydrographic apex of the continent because moisture precipitated on it may reach any one of three oceans.

Immediately northwest of the Columbia Ice-field the Continental Divide is capped by the Clemenceau Ice-field, and then by Hooker Ice-field, each of which is very large and attended by several glaciers. As the main line of the Canadian National Railways is approached, the mountains become a little lower and the ice-fields are replaced by the smaller mountain glaciers familiar to all who have visited Jasper Park. Perhaps the best-known of these is the Angel Glacier, so named because of its two "wings" of ice adhering to the slopes of Mount Edith Cavell. This beautiful glacier is easily reached by automobile road and displays good examples of ice-falls, séracs, crevasses, and moraines. Trips to Maligne Lake, southeast of Jasper, and to Tonquin Valley, several miles southwest of Jasper, also provide views of a variety of mountain glaciers and glacial phenomena.

In the mountains immediately north of the Canadian National Railways and east of the Continental Divide, the glaciers are usually of the small, mountain variety. They are larger and more numerous in the mountains seen along the railway between Yellowhead Pass and Tête Jaune Cache. A splendid group of glaciers adorns the west side of Mount Robson and one of these sends a cascading glacier steeply downward for about 3,000 feet to the edge of Berg Lake where large ice-blocks are detached to float before melting. Across Robson River is the Swiftcurrent Ice-field and about twenty miles to the north the great Resthaven Ice-field occupies the extreme northwest corner of Jasper Park. Forty miles farther west is Intersection Mountain where the Interprovincial



Crevasses and moraine on the surface of Angel Glacier, Mount Edith Cavell, Jasper National Park

Glacier on Mount Alberta, flanking the west side of Sunwapta Valley.



Boundary leaves the Continental Divide and follows the 120th meridian. North-westward from that point the Rockies continue for 500 miles through northern British Columbia, ending near the Liard River.

The Selkirks lie west of the Rockies, from which they are separated by a deep valley called the Rocky Mountain Trench. They are bounded by the great loop of the Columbia River which flows northward through the trench as far as the mouth of Canoe River, then turns southward and drains through the Arrow Lakes. The southeastern ranges of the Selkirks are generally termed the Purcell Mountains. The Selkirks are built of rocks differing somewhat in age and kind from those of the Rockies. This fact combined with a greater precipitation gives the Selkirks a character distinct from the Rockies, and for many years the little townsite of Glacier was a mountaineering centre rivalling Banff. Although the Selkirks do not contain any single ice-field as large as the Columbia, the greater snowfall produces a host of large névé-fields, ice-fields, and glaciers which in the aggregate contain more ice than a similar area in the Rockies.

The best-known part of the Selkirks is that crossed by the Canadian Pacific Railway, where a large area has been set aside as Glacier National Park. The southern half of this park is famous for its large névé-fields, the greatest of which feeds the much-photographed Illecillewaet Glacier, extending far down into a deep valley two miles from Glacier Station. Marks placed at the toe of this glacier in 1887 show that the ice has since retreated over 2,000 feet. Illecillewaet Glacier provides an easily-reached means of observing large moraines, ice-falls, and crevasses. A smaller national park has been established near the town of Revelstoke at the western portal of the Selkirks. This park contains very large névé-fields. The recently-completed Big Bend Highway follows the northern boundary of the Selkirks for 193 miles between Golden and Revelstoke, through majestic mountain and glacial scenery.

In these few pages it has been possible merely to outline the origin and distribution of the glaciers in the Rockies and Selkirks. No mention has been made of the Coast Mountains, where the glaciers are larger but less accessible than those described.



Among the séracs of Illecillewaet Glacier. These ice-pinnacles are formed by the intersections of large cracks or "crevasses". The climber is wearing ice-claws or "crampons" strapped to his boots.



The séracs of the cascading or tumbling glacier, Mount Robson, Mount Robson Park, British Columbia

Mount Robson (12,972 feet), the highest mountain in the Rockies, towers above the general range and is about thirty miles from the camera. The foreground shows details of the sculpturing effect of great glaciers that have melted away.





Sunwapta Valley, Jasper National Park, at the head of which can be seen the foot of Athabaska Glacier. The edge of the Columbia Ice-field can be seen at the right skyline,



Left:—The foot of the tumbling glacier, Berg Lake, Mount Robson, Mount Robson Park, British Columbia

Top right:—Descending a snow-slope on Tupper Glacier, Swiss Peaks in background, Glacier National Park, British Columbia

Bottom right: — The cascading glacier on the north slope of Mount Robson (elevation 12,972 feet), the highest peak in the Canadian Rockies. Note the lateral moraines extending into Berg Lake.





Progressive and vigorous, São Paulo is a business centre of Brazil. From the commercial point of view it is famed for its coffee, cotton and cocoons, while the presence of some of the best book-publishing houses in the land, the unique Discoteca, and a municipal orchestra indicate important cultural contributions.

Photo courtesy of Silva, Jr

BRAZIL

by RENEE TALLANTYRE

MAGNIFICENT and grandiose Brazil, land of superlative marvels, takes its name from a native tree, *Caesalpinia echinata*, commonly called brazilwood, which yields a heavy red dye. The word Brazil is derived from the Portuguese *brasa*, meaning a glowing coal, in reference to the intense redness of the dyewood.

In all the world there are no two nations more friendly towards each other than Brazil and Portugal, whose destinies have been so harmoniously grafted one upon the other. Portugal, having given of her best blood to Brazil, now admires the boundless growth of the land she discovered; and Brazil, proud of her aristocratic ancestry, is still so liberal that, instead of banishing the descendants of the

Imperial Family from Republican soil, she enjoys their presence as honoured and happy citizens. The eminent President of Brazil, Getulio Vargas, has sagely intimated that no man could be a good leader of Brazil who was not also a firm friend of Portugal's.

The vast realty of Brazil was established at the dawn of the sixteenth century when the famed Portuguese navigator, Pedro Alvares Cabral, commanding a fleet of ships, sailed down the River Tagus from picturesque Lisbon for the Indies on March 9, 1500. Legend says that a huge statue whose arms pointed imperiously westward, found on Corvo Island of the Azores group, had seemed to direct Cabral to the New World. He kept clear of the



Cinelândia, home of the "movies" in Rio, in a setting of rolling-motion mosaic pavements at one end of the Avenida Rio Branco. In the background is the great Opera House in which Maestro Toscanini, at the age of nineteen, first conducted opera.*

African coast and deviated so far from the usual course that on April 22 he sighted land to the westward. That land was progressively named Porto Seguro, Vera Cruz, then Santa Cruz, until the abundant red dyewood suggested brasa to Cabral's people, thus determining forever the euphonious name of Brazil, O Brasil.

Time went by. Then Portugal opened eager eyes to Brazil's riches. All that commercial needs, artistic imagination, adventurous spirit, tradition and culture could wish for as raw material was there for limitless development. Upon escaping from the clutches of Spain in 1640, Portugal paid keen attention to Brazil, beginning with the expulsion of the Dutch from Pernambuco.

Brazil became an independent nation at Ypiranga on September 7, 1822. A month later the Portuguese-born Prince Pedro was crowned Emperor of Brazil, as Pedro I. He and his son were the first and last

Emperors. On November 15, 1889, the Republic of the United States of Brazil came into vigorous being, a colossal nation of twenty States, one Federal District and the Territory of Acre.

Three race elements originally made up Brazil as a nation: Portuguese, Indian and Negro. The fusion of these began as soon as the country became settled. From their intermingling there has developed a hybrid, or mestiça race and an admirable social order, for Brazil is at heart a truly democratic country. No discrimination is anywhere allowed for creed, original nationality or colour.

Brazilians are extremely hospitable and friendly people. They absorb all foreign tendencies into a homogeneous atmosphere of cordiality in which no prejudice is countenanced. A new arrival in Brazil feels he has reached another homeland and acquired a most agreeable second nationality.

*Photos courtesy of Brazilian Government Trade Bureau.



Often to the surprise of foreign visitors, Brazilian society is found to be annealed by men of letters, arts and sciences; by lovely senhoras in the latest elegancies of dress, and accomplished hostesses gracing

sumptuous mansions in gardens overflowing with gorgeous native and foreign plants. Above all, Brazil is a cradle of artists, musicians and singers; of poets, writers and sublimely eloquent orators, masters of

the effusion of forty-five million Brazilians. Foremost among the orators has been Dr. Ruy Barbosa, veteran statesman, the classic purity of whose speech has reserved a place for his discourses among imperishable world literature. He was Brazil's envoy to the Conference of Peace celebrated in the Hague in 1907, and his fluent command of many tongues made his name a synonym for eloquence. Alceu de Amoroso Lima, literary critic, avers that from all this poetry and articulation and profound humanity of his people "will come the sap of to-morrow's tree".

The difference between the Portuguese language of Brazil and that of Portugal is possibly less than the difference between the English of Canada and that of England, or the Spanish of any Latin-American country and that of Spain, except that certain turns of speech taken from the Indians and Negroes have left on Brazil's tongue a flavour distinct from academic Portuguese. On this subject Dr. Julio Dantas, President of the Academy of Sciences of Lisbon, said that the Brazilian Government, through its young Minister of Education, Dr. Gustavo Capanema, declared in 1942 at a session of the Brazilian Academy of Letters, that there is but one Portuguese language in the world; and that the Brazilian Government accepts the recently published vocabulary approved by the Academy of Sciences of Lisbon as the standard of the united and immortal tongue of Camões: Portuguese. The Brazilian Academy of Letters enjoys the Presidency of the erudite Dr. Macedo Soares. All educated Brazilians speak French as their second language and many of them speak English too.

* * *

Triangular in shape, Brazil has a scalloped coastline more than four thousand miles long, trimmed with the lace of bays and beaches. A great part of the whole territory is occupied by the enormous States of Amazonas and Pará, which are tremendously important rubber and jute lands, and by the limberlost of Matto Grosso. The northern, mountainless stretches of country are rich with bouquets of flowering trees, with trees bearing orchids aloft, with trees choked by other trees, and with those that yield precious woods, medicines and fuel. The central and southern parts are high plateaux scarred by deep valleys and many rivers. The climates

come under three generic divisions: equatorial, in the extreme north; sub-tropical, covering the central and north-eastern States; and temperate, including about half of the State of Minas Geraes, four-fifths of São Paulo State, and all of Paraná, Santa Catarina and Rio Grande do Sul.

These divergencies of topography, climate and race elements yield a fabulous supply of commercial products, vegetation, arts, music, song and dance, as well as men and women of different ethnical character, all flowing down like lava expelled from benevolent volcanoes, to fertilize the coastal towns where ninety per cent of the whole population lives. In presenting a concept of the country, it must be pointed out that it is so huge, so complex, with days of travel between ports of call, that each place has its own spiritual and physical identity and festivals. Differences in scent, sound and scenery pin each locality like a badge of experience to the memory of a visitor.

Brazil is the biggest Latin nation of the Western Hemisphere, of which Dr. Julio Dantas has said: "Sprung from the projection of Portuguese genius, it is to-day in its magnificent ascendancy, in its enlightened civilization, in its international prestige, a product of its own effort".

* * *

A narrow ribbon of land lies flat along the greater part of the coast. On fifteen or so miles of that ribbon there glows in all its wonder and majesty the capital city of Brazil, Rio de Janeiro, surveying the glorious Bay of Guanabara that is without a peer, whose pattern of a hundred islands among blue-purple shadows fuses the golden reflections of sunlight on the sea of day-time. The bay was mistaken for an estuary by its discoverers on a long-ago New Year's Day. They were perhaps awed by its mammoth mountains and rocks jutting out of the Atlantic in dramatic postures, ambushed by mysterious forests, matted and crisp in dense green tones; and surely they must have been enthralled by the lavender of a Rio morning, the heliotrope of a Rio evening, the Tyrian purple of a velvety Rio night. Rio de Janeiro defies adequate description, yet invites the best attempt of every beholder who can string three words together. It might make the dumb speak.

In Rio de Janeiro of to-day, we of the modern world look at the work of man



President Getulio Dornelles Vargas of Brazil, astute and able leader of a vigorous people. He was at one time Federal Deputy for his own State of Rio Grande do Sul, then Minister of Finances, and later Governor, being finally elected President of Brazil by the Constitutional Assembly. Acting with tact and caution, he has reduced public expenses, arranged to settle foreign debts and suppressed revolution, so that during the first decade of his leadership Brazil has lived in peace and pursued the programme of the New State. This is the compact, agile man of whom it is said: "he can be silent in ten languages".*

superimposed on the infinitely superior work of nature. At twilight a violet halo clouds the hummocks and hills, called morros, softening their contours, and out of the steaming jungle come the songs of myriad birds. At night the illuminated gigantic statue of Christ, on top of Corcovado, the Hunchback Mountain, perhaps beneath a refulgent moon, sheds over nearly two million souls in Rio a lambent radiance that seems unearthly. This Christus, the Pão de Assucar or Sugar Loaf Mountain, in company with the Organ Mountains and the Finger of God pointing skyward, are physical symbols of divine grandeur belonging to Brazil alone. Nowhere in the world is there such another panoramic marvel as this.

The city of Rio has a reputation for high business ethics. The docks are equipped with modern machinery. Living conditions are extremely pleasant. Shops dis-

play the latest creations in gowns and millinery, for the Brazilian woman is individual and chic. Rio, like Lisbon, has avenues lined with luxuriant trees and pavements of dazzling mosaic in original patterns.

The most delectable event of the year in Rio is Carnival* before Lent. The people abandon themselves avidly to enjoyment. Work stops for three days straight. No one sleeps, no one fights, every one laughs, each melindrosa of a girl flirts with every eager amorzinho of a boy. Fun is king. Gorgeous floats roll along the avenues. Songs in mellifluous Portuguese rib the air. Samba and maxixe music set feet on fire. Rio's Carnival is unique. People from all over the world go there to see it.

Life in Rio de Janeiro is something packed full of seductive Cariocas, male and female. Cariocá, such a well-known, lovely name, is of Tupian origin. Cari is 'white

*Carnival — *carne, vale* — O flesh, farewell.

man' and *ocá* is 'house': so, 'the white man's house', now meaning a resident of Rio.

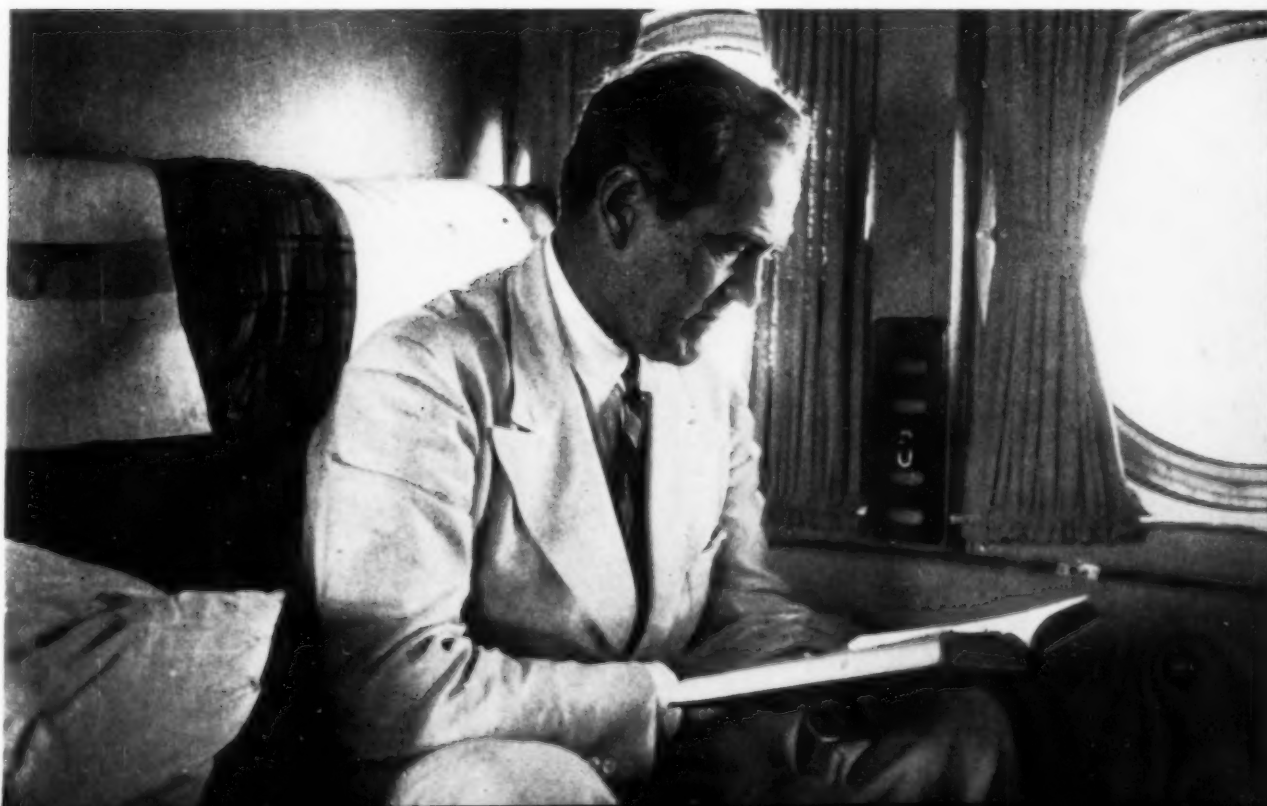
In the middle of Guanabara Bay, equipped for every kind of sea or air plane, is the Santos Dumont Aerodrome, named after the famous Brazilian aeronaut, Alberto dos Santos Dumont (1873-1932). He was the first man successfully to use a dirigible of his own construction and won the long-standing prize, offered for circling the Eiffel Tower in Paris, in any kind of flying machine. He then turned to the heavier-than-air machines and became the first man in Europe to fly an aeroplane, also of his own invention. Whether the Wright Brothers or Santos Dumont first flew an aeroplane is now a hoary controversy. Brazilians naturally claim that their compatriot was first. Certain it is that the Wright Brothers kept their flights secret and that Santos Dumont did not know of them when he designed and built his aircraft. Another Brazilian pioneer was Bartolomeu de Gusmão (1675-1724), a monk who is claimed as the first man actually to show the possibilities of lighter-than-air craft, an idea developed later by Montgolfiers.

It is a far cry from flying in those early days to the present airline operations of Panair do Brasil and Pan American Airways System. Panair do Brasil covers some 15,000 route-miles and uses, among other craft, a fleet of Lockheed Electras and Lockheed Lodestars. President Vargas himself owns a Lodestar and has flown to nearly every part of Brazil in energetic vigilance of his country's welfare.

To-day there are more than 600 airfields in Brazil. The air-minded Government, in which Dr. Salgado Filho is Air Minister, is sending many of the cleverest young men to aeronautical schools. Training planes are being donated by private citizens, civic groups and banks, through the initiative of Assis Chateaubriand and the campaign in sixteen newspapers he controls. The late Henrique Lage spurred Brazil to prepare for defence by air and has been followed in this by Colonel Antonio Muniz, Chief of Technical Air Services, who has made great strides during the last eighteen months in the design and building of aircraft.

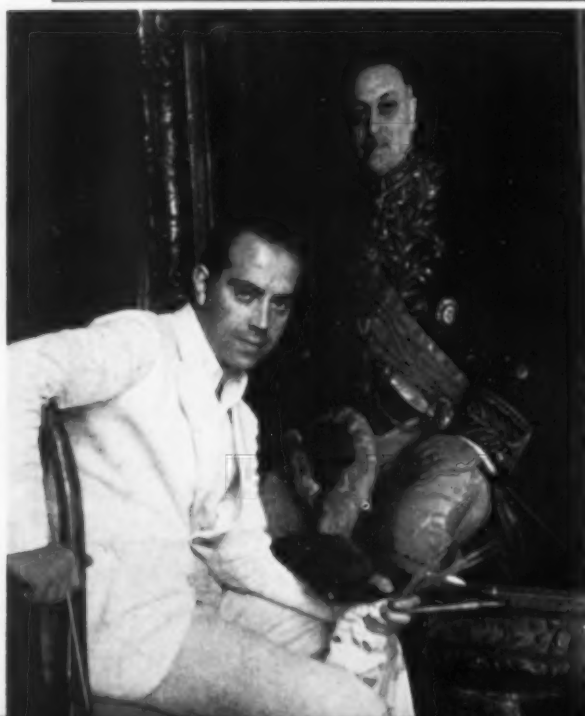
Brazil has given more help to the

His Excellency, Dr. Oswaldo Aranha, pre-eminent Minister of Foreign Affairs of Brazil, on one of his flying trips from New York to Rio de Janeiro aboard a Pan-American Airways clipper. A man of candour, dynamic intellect and rare charm, he can converse with encyclopaedic facility on almost any topic. Dr. Aranha is the essential link, as a great American, between his own country and North America.





C. G. J. map



United Nations' cause than any other South American country. At her disposal, under lend-lease terms, there are the renowned Lockheed Hudson bomber, and certain Martin, Vultee and Vought-Sikorsky types of combat aer

The Brazilian Press has been whole-hearted in its support of the United Nations. In order that the Government may keep an eye on foreign mahinations it was decreed in 1942 that all publications might be printed only in Portuguese. Formerly there were seventeen German, fourteen Italian and nine Japanese newspapers, but only one English-language paper. The Japanese are reputed to have

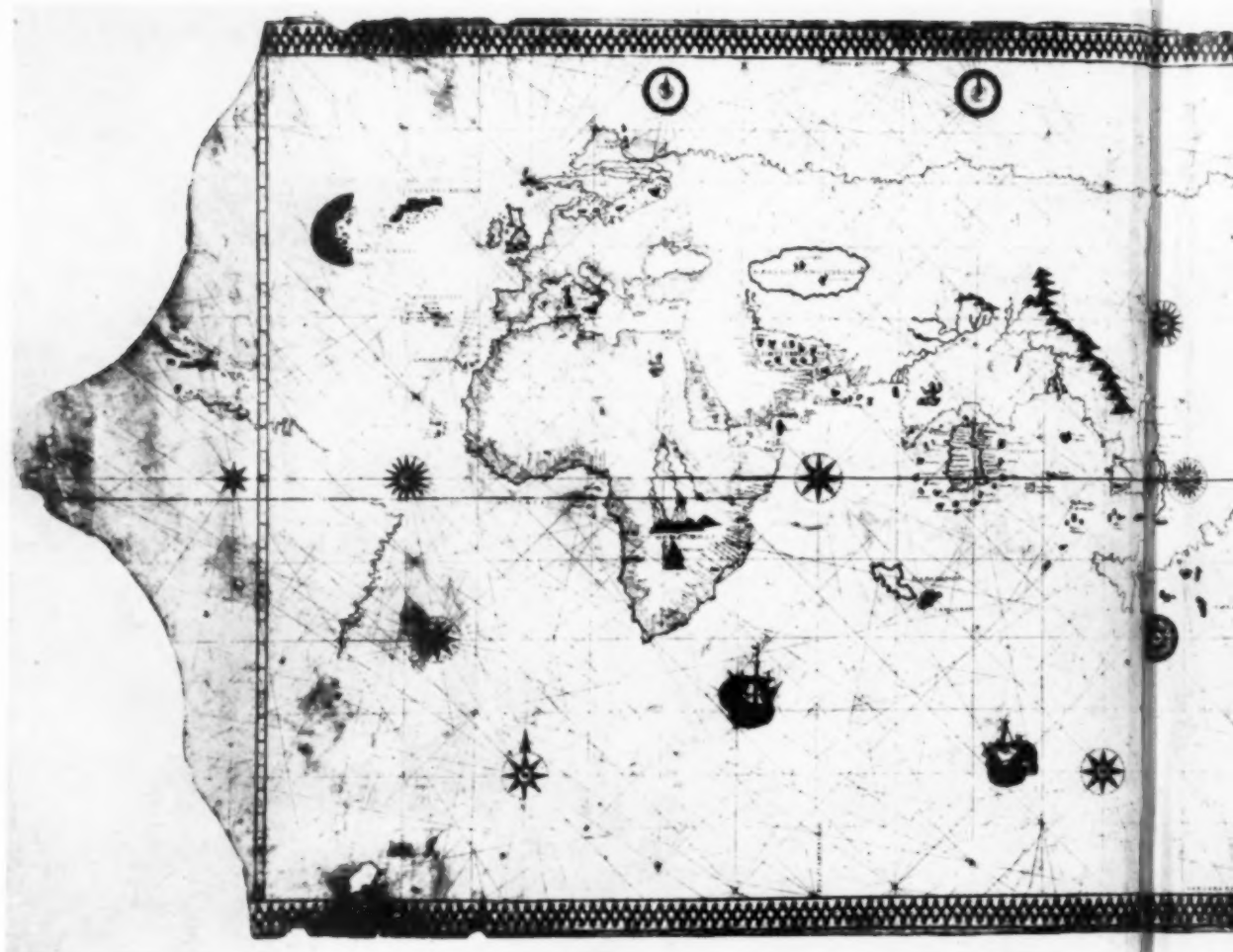
Portrait of ex-Chancellor Macedo Soares, President of the Brazilian Academy of Letters, painted by the great artist, Henrique Medina, shown here in foreground.



Magnificent Rio de Janeiro, capital city of Brazil, as seen from Sugar Loaf Mountain, with a glimpse of the Copacabana Beach to the left, and, to the right, the Corcovado Mountain bearing aloft the Christus into the clouds. At night the Copacabana Beach is illuminated with myriad globular lamps, which have earned for it the fitting name — "Necklace of Pearls".

Statue of Christ on the summit of Corcovado, Hunchback Mountain (left), and Sugar Loaf Mountain (centre background); these two famous landmarks stamp the peerless panorama of Rio de Janeiro forever on the memory.





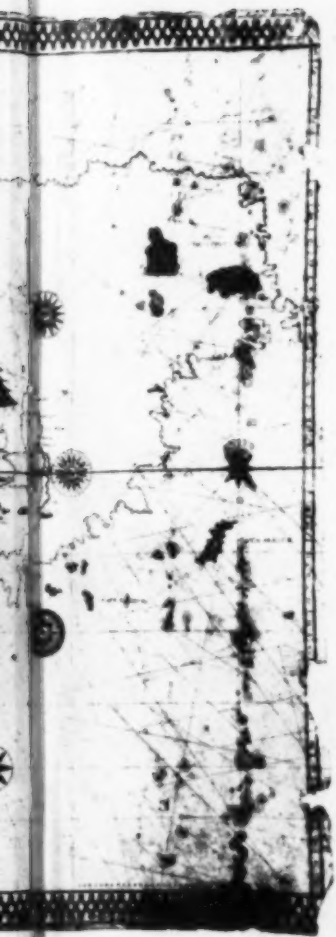
bought land in the southern part of Brazil to follow a military pattern of strategy that cuts the country in two by those purchases. There seems to be something familiar, disturbingly familiar, about this action . . .

Brazil was the only South American country to join the U.S.A. in declaration of war on Germany in 1917. She has been the first one to declare war on Germany and Italy now, having ranged herself with the rest of the Allies on August 22, 1942. Just before this declaration the Brazilian Ambassador to Portugal called upon Dr. Antonio d'Oliveira Salazar, Prime Minister of Portugal, to inform him personally that Brazil was about to declare war. Dr. Salazar at once called a special session of the Council of Ministers, presided over by Dr. Oscar Carmona, President of

Portugal, after which the following message was cabled by Dr. Salazar to President Getulio Vargas:

"The Portuguese Government, for whom the juridical position assumed by Portugal in the present conflict has never meant, as has already been said more than once, a breach of the historical bonds that bind her to other countries**, feels this especially in the case of Brazil, with whom close ties of blood make relations unalterable. At the moment when Brazil finds herself involved in war, the Portuguese Government give heartfelt expression to Brazil on behalf of the Portuguese people of the brotherly esteem, the moral solidarity and the sincere emotion with which they accompany the sister nation in the attitude of

***The historical bonds that bind her to other countries" refer to the alliance of Portugal with England.



The Richard King Portulano

The original manuscript on vellum of this portulano is undated and unsigned. It is called the Richard King Portulano because it is supposed to have been in the possession of the English explorer of that name when he died in 1876. It came into the hands of Henry E. Huntington in 1912, and is now owned by the Huntington Library of San Marino, California. Recent studies have led Messrs. Duarte Leite and Armando Cortesio to date it some time after 1504 and to consider it Italian work done in Portugal.

The chart's great interest lies in the astonishing accuracy with which the Brazilian and African coastlines are drawn, in contrast to the erroneous charting of the West Indies and Far East, although more than ten years had elapsed since the first voyage of Columbus at the time this portulano was made. This would indicate that there was much more accurate knowledge of the configuration and geographical position of the Brazilian coastline than of the West Indies, and as it is not likely that such an accurate knowledge could be obtained within a few years of the official discovery of Brazil in 1500 and the time that this portulano was mapped, there is raised once more the controversial matter of the claim of some Portuguese historians that Brazil was actually known to the Portuguese before they officially discovered it.

Another interesting feature of this portulano is that part of the coastline of the north eastern bulge of Brazil and the Islands of Fernao Noronha are not shown. Pope Alexander VI divided the world arbitrarily between Spain and Portugal by the Treaty of Tordesillas in 1494. The dividing line first proposed would have included that part of the coastline not shown on the portulano, as well as Fernao Noronha. At the request of Portugal, the Pope's line was extended farther to the west for (at that time) no apparent reason; but after the official discovery of Brazil it was found that, consequent upon the Portuguese request for the moving of the Pope's line, the main part of Brazil had become included in the Portuguese zone of the world, whereas otherwise it would have been within the Spanish zone.

The portulano shows two vertical lines with the degrees in latitude. It would seem that these vertical lines embrace the Portuguese part of the world in accordance with the Treaty of Tordesillas.

Courtesy of Henry E. Huntington Library and Art Gallery

A Lockheed-Electra aeroplane at Santos Dumont airport, Rio de Janeiro, Brazil

Photo courtesy of Pan-American Airways System





A happy coffee picker among the harvest of the terra roxa, red earth, of Sao Paulo's rich coffee lands. The coffee shrub has bright, shiny green leaves, fragrant white blossoms and berries that are progressively green, red and black as they ripen.*

Coffee being dried on a *fazenda* in the State of Sao Paulo. Brazil's delicious coffee makes up the bulk of the blends now being sold in North America.*

sacrifices adopted by her in defence of what she considers to be her honour and her right."

* * *

An outstanding contribution to science is the Oswaldo Cruz Institute, housed in a magnificent palace of Moorish architecture at Manguinhos, Rio de Janeiro. It has a story: in the year 1895 an Italian ship arrived in Rio, its crew prostrate with yellow fever. In 1902, having gained a foothold, the disease claimed hundreds of victims in Rio alone. Yet only four years later President Theodore Roosevelt of the U.S.A. allowed a Navy squadron to visit the capital, for he had believed the statement of Oswaldo Cruz, scientist of Brazil, who had assured him Rio was free of fever. Not one sailor caught it.

Since those days the Oswaldo Cruz Institute has won signal honours in Europe and many international prizes. Highly important work by Carlos Chagas in trypanosomiasis, commonly known as Chagas's disease; by Cardoso Fontes in tuberculosis; and by M. Ozorio de Almeida in physiology, have followed Oswaldo Cruz's own work. This Institute leads scientific research in all South America.

Contrasting with such progress in science are many charming legends of religious origin. One legend of middle seventeenth century Brazil concerns a

small church atop a rock on the road from Rio to Petropolis. It seems that a traveller lay down to sleep near the base of this rock and dreamt that a crocodile was creeping upon him; but suddenly he saw a smiling saint on a cloud overhead. At this vision he awoke — and there indeed was the crocodile. But a snake came along and killed it. Then a rabbit scuttled out of nearby bushes and hopped up the rock, looking back at the man as though enticing him to follow. The man did so and found on top of the rock a little image of the saint of his vision.

On that spot there stands now the Church of Nossa Senhora da Penha, Our Lady of the Rock. Each Sunday of every October hundreds of pilgrims visit the Penha Church, afterwards joining in singing, dancing, picnics and raffles in its spacious grounds. In common tradition with the Portuguese, Brazilians love legends and festas and processions, which give grace and movement and added interest to their days, a romantic veneer upon the hardwood of life. Every state and church occasion throughout the year is marked by some festival or parade. Bullfights, however, do not exist in Brazil. Soccer football is encouraged instead.

* * *

Second city of importance in Brazil is São Paulo, hub of the great coffee industry

and a cultural as well as a commercial centre. Mario de Andrade, a writer, musician and folklorist of São Paulo organized libraries and programmes of music by Brazilian composers such as the famed Heitor Villa-Lobos, Carlos Gomes, Camargo Guarnieri, Francisco Mignone and a host of others. He it was who founded the Municipal Orchestra of São Paulo and the unique Discoteca, which is a public library of phonograph records of classical, modern and regional folk music. In the Discoteca one may listen in private cabinets to the nostalgic voices of all Brazil.

One of the valuable activities of São Paulo is carried on at the Butantan snake farm, which manufactures serums with a venom base. The progress made at Butantan in preventive medicine plays a leading role in the settlement of new territories, such as the Ford rubber lands, where science is vanguard to agriculture. If the present war ever lets civilization go forward again instead of driving it backward, the success of tapping vast stores of raw materials in Brazil's hinterlands and carrying them in huge cargo aeroplanes of the future to places where they are needed, will largely depend upon science. Labourers and their families must be flown into the jungle settlements, not to die like flies, but already inoculated against the onslaughts of insects and pests and provided with medicines and serums for snake bites. The thriving of such future settlements lies with enterprises like the Oswaldo Cruz and Butantan.

A nation as rich as Brazil in timbers quite understandably gave little thought to reforestation, until in 1903 the Paulista Railroad Company of São Paulo foresaw a shortage of wood for firing locomotives, for ties, piles and fence posts. (Railroads

Carnaúba palm (*Copernicia cerifera*), the Brazilian wax palm, which yields carnaúba wax used in the making of candles and varnish, phonograph records and even aeroplanes. This tree is grown extensively in the State of Ceará.

A *seringueiro*, or rubber collector, on Henry Ford's plantations at Belterra. The latex is allowed to drip into the porcelain cup at the base of each tree, whence it is periodically collected and bulked. The work of slashing and tapping the rubber trees requires infinite care—too shallow a cut does not release the latex, while too deep a cut ruins the tree.*





The port of Santos, outlet to the world for the products of the State of Sao Paulo, steepes itself in the delicious aroma of roasting coffee beans. Tiny cups of sweet black coffee punctuate the day of every Brazilian.*

in Brazil are obliged by law to fence their rights-of-way.) It therefore invited Dr. Edmundo Navarro de Andrade to direct a forest plantation along its thousand miles of roadbed.

In 1941 Dr. Navarro de Andrade was awarded the Meyer Medal by the American Genetic Association for work in the introduction and use of Eucalyptus trees in Brazil, an occasion for which the Brazilian Minister of Canada, at that time, Dr. João Alberto Lins de Barros, flew to Washington, D.C. In his address before the Association in Washington, Dr.

Navarro de Andrade said "the most important result of my work obtained by the Paulista Railroad Company's Forest Service has been the stimulation of reforestation in the whole of Brazil". *Eighty million Eucalyptus trees from California seed alone are now yielding timber in Brazil.*

* * *

The Brazilian counterpart of the man the world knows as a cowboy is a vaqueiro, the chief figure of the Sertão, the broad rough lands where a man may ride many leagues without meeting his fellow. Bahia, Sergipe, Ceará, Rio Grande de Norte, Alagoas, Pernambuco, Parahyba and Piauhys are cattle-raising States in a group and home of the vaqueiros. The great cattle State of Rio Grande do Sul is isolated from them in the south.



In a revealing play of light and shade, the immense Independence Monument stands out against a cloud-line at São Paulo. This monument commemorates the establishment of Brazil's independence and the crowning of young Dom Pedro of Portugal as Pedro I, Constitutional Emperor of Brazil.*



The exquisite Praia Copacabana of Rio de Janeiro attracts bathers from all parts of the world. (See also distant view, page 75).*

The vaqueiros are men of Portuguese and Dutch descent, mixed with a little Indian and Negro, a distinct ethnical type known as Sertanejo. Daily they ride out to inspect animals and often to cure their ailments with not much more than magic. As a rule, one-quarter of the number of calves a vaqueiro raises in a herd belongs to him as pay.

Tall and wiry, quick to move in the saddle, the vaqueiros wear thick leather chest-guards and jackets, trousers and gloves, to protect them in the exigencies of dashing after furious steers in a thorny country. They carry *aguilhadas*, lance-like prods for driving cattle. The horses they bestride wear rawhide breastpieces. A vaqueiro, dressed and mounted for a roundup, puts one in mind of an armoured knight riding forth to the jousts.

Euclides da Cunha, one of Brazil's

excellent writers, has a book all about life in the Sertão called *Os Sertões*.

* * *

In the heart of the Amazon jungle, some seven hundred miles from the Atlantic Ocean, several million young rubber trees are being cultivated on the Henry Ford enterprise at Belterra on the Tapajoz River. They should yield rubber in commercial quantities this year, from seedling shoots of the best quality Malaysian trees grafted on to tough-rooted Brazilian stock (*Hevea brasiliensis*) from the Island of Marajó, Pará and Amazonas. Wild rubber

With sunshine and trees, mansions and church, mountains and water, Botafogo Bay, Rio de Janeiro, lies beneath the benevolent vigilance of the image of Christ on Corcovado Mountain, which rises 2,329 feet into the sky.



trees grow singly in the jungle and have to be sought out.

Ford had seen, by 1933, that his original concession at Fordlandia—80-odd miles upstream from Belterra—was unsuited to rubber growing, so Fordlandia is now used only as an experimental station. Belterra comprises some seven hundred thousand acres of land conceded by the Brazilian Government, which has co-operated eagerly with Ford. Belterra has a settlement of seven or eight thousand people and the amenities of sanitation, hospitals, schools, filtered water, movies, ice, paved roads and those all-important serums and vaccines from Butantan and Oswaldo Cruz. There is still a shortage of labour on these plantations, just as there is in the cottonfields of São Paulo. This is a problem to which President Vargas gives constant study. He wishes ardently to foment rubber production because of its vital place as a renewed and greater *industria brasileira*.

Nine hundred and thirty miles up the Amazon River is the city of Manaus, a dividend from the old-time boom in Pará Fine rubber. It evolved from the ancient Fortaleza de Barra after the rubber industry took a certain impetus in 1839 from Goodyear and some English investments. Manaus has a good harbour and an opera house in which Madame Adelina Patti once sang, journeying all the way from Paris for a single night's performance.

* * *

Sugar-cane was introduced into Brazil from Madeira. São Salvador, capital of the State of Bahia and usually called simply Bahia, is the original sugar city. Founded in 1549, it is a port of great character. Gilberto Freyre, poet and social historian, has called it "the stout maternal city of all the saints and nearly all kinds

of sin". Saintry or sinning, Bahia exudes the pungent scent of mangoes, frankincense and myrrh floating out from open church doors, of fragrant cooking, of warm dark skins and sugar sweetness distilled in laughter.

Hardwood carving and the charm of old churches thick with baroque ornament are the background for Bahia's teeming life. The baroque, said Augusto da Lima, Jr., could be called the art of the Brazilian civilization. The word baroque, or *barroca*, is of Visigoth origin and is used in the State of Minas Geraes to describe the bumpy outlines of mountains eaten away by erosion. Of Bahia, José Lins do Rego writes: "It has its hidden treasures, its own particular way of life. We see the people, with all the natural sweetness of that land, climbing the hilly roads, singing on the fishing boats, dancing at the Macumba gatherings, praying in the churches, exemplifying that truly Brazilian characteristic, cordiality." The Macumba gatherings are secret religious ceremonies among the coloured folk, definable as Brazilian voodoo.

The red ibis and egrets, the small interesting animals, the extraordinary piranha and pirarucu fish, the endless plants and gorgeous flowers make a kind of metaphorical scroll framing Brazil in brilliant colours. Of the flowers, the *Victoria regia* is queen; it is a waterlily whose blooms measure twelve inches across and whose circular flat leaves have a diameter of five or six feet, with six-inch edges turned up at right-angles. On one of these leaves a child may sit with perfect safety in the middle of a river. London's Kew Gardens and Amsterdam's Hortus Botanicus each have a prized *Victoria regia*.

And fruits! Those piles of peeled oranges, chilled, whole, juice-oozy on

Scenes along the Sea Road (Caminho do Mar) from Santos to São Paulo, Brazil



plinths of aromatic rind! Those pine-apples radiating sunbred temptation from open fruit shops! That special flavour of the mamão, also called papaya, each mouthful sliding along the palate with oyster ease! And bananas scented with the accumulated goodness of the centuries behind the banana family.

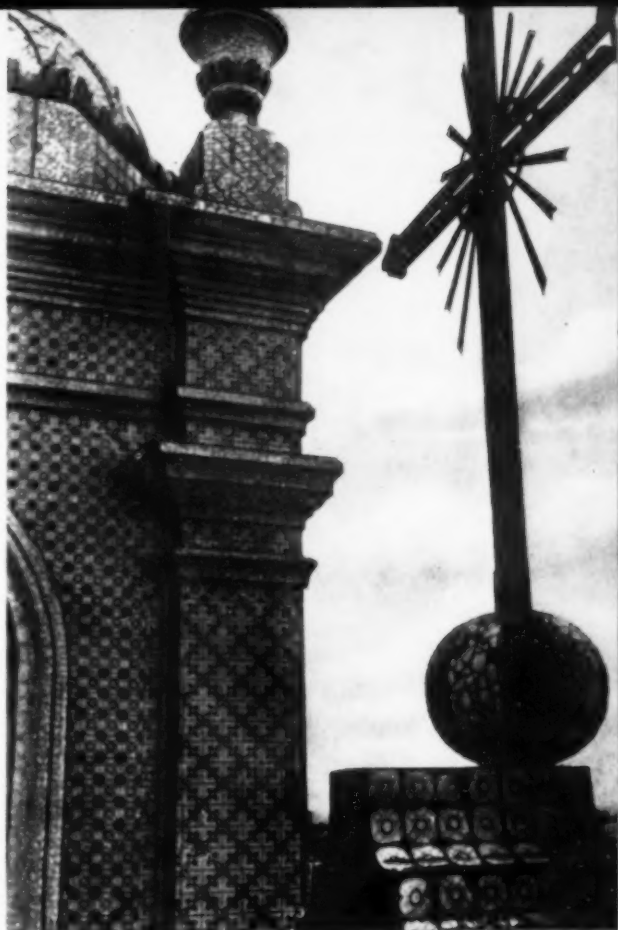
Brazil is not one of those countries that tourists, a vanishing species in war-time, can 'do'. You cannot do Brazil, it is too big. You have to live in it, to love it, to get it under your skin, to fill your nostrils with the aroma of its renowned coffee — coffee that is a special nectar. You cannot even write about Brazil without asking your publishers for extra space. You have to travel back and forth in it to understand the views of the Paulista of São Paulo, the Bahiano of Bahia, the Carioca of Rio, the vaqueiro of the Sertão and so on, all of these people deeply Brazilian but each one a keen individualist and localist. National unity is one of President Vargas's dearest aims. He wants his countrymen and women to feel they are Brazilians first and regionals second.

No shirts, no fasces, no political parties, no salutes and no fatuous slogans cut any swaths of discord in Brazil. There are, instead, two words stamped on the reverse of some of her coins, curved around her escutcheon, banded across emblems of the constellations that look down upon her nights. Just two meaningful words: ORDEM E PROGRESSO, Order and Progress. In this age of frantic advertising and screaming propaganda, words are so often abused that etymology disowns them; but not these two. Ordem: a harmonious relationship among the people, conformity to law, equity and justice. E Progresso: a march forward in national prestige, in spiritual evolution, in the advance of civilization.

Ordem e Progresso. These are Brazil.

Exquisite details of the Church of Bom Jesus Dos Martires at Maceió. Brazil has everywhere preserved, developed or interpreted, after her own manner, the glorious legacy of Portugal.

The colossal statue of Christ at the top of Corcovado, Hunchback Mountain





Looking over Frozen Strait from Passage Rock toward White Island

NOTES ON THE COASTAL DISTRICT OF THE EASTERN BARREN GROUNDS AND MELVILLE PENINSULA FROM IGLOOLIK TO CAPE FULLERTON

by T. H. MANNING

Sir Thomas Button was the first of the explorers to visit this region. In 1613 he sailed up what is now Roes Welcome to latitude 65° (Christy, 1894, p. 181) or very nearly as far as Wager Inlet. According to Foxe's account, (the original one), Button considered the Welcome to be a bay, but, as Foxe points out, without adequate reason (Christy, 1894, p. 182). When, however, Captain Luke Foxe himself visited Cape Fullerton and perhaps Whale Point in 1631 (Christy, 1894, pp. 318-322), he made no attempt to follow the coast to the north, but, after landing on a small island, where he found a large num-

ber of Eskimo graves together with grave furniture, he turned to the south. It is quite impossible to identify this island among the many small ones around Cape Fullerton, and, according to Christy, (1894, p. 321), Foxe's manuscript does not mention that it was an island on which the name was bestowed. Whatever it was intended to designate originally, the name was shortly applied to the strait between Southampton Island and the mainland.

In 1822, Captain Scroggs was sent by the Hudson's Bay Company in search of two ships which had formed an expedition sent out by the same company under the



Connecting snowhouses at the head of Gore Bay, about March, 1937

command of James Knight in 1719. Scroggs was unsuccessful in his search for the missing expedition, all members of which had perished of starvation and scurvy on Marble Island. After naming Cape Fullerton, he sailed up Roes Welcome to latitude $64^{\circ}56'$ (Dobbs, 1744, p. 80) where he named a point Whalebone, after his boat. This name has now been shortened to Whale Point.

In 1742 Middleton (1743) entered Wager Inlet. He spent about three weeks on the north side of the Inlet just past the narrows waiting for the ice to clear from the north of Roes Welcome. While the ships were there, a boat party saw the reversing falls at the head of the inlet (p. 142), where the tides were said to rise only 6 feet, and the water was fresh enough to drink. It was perhaps the sighting of these falls that induced Middleton to consider Wager Inlet a river. The south point of Repulse Bay was named Cape Hope since it was at first thought to be the north-east point of America. When it became apparent that the water ahead

was a bay, Middleton turned back in the direction from which the flood tide had been observed to come, and discovered a strait, packed with ice, leading to the east, and as he correctly assumed, toward Cape Comfort (p. 118). After naming it Frozen Strait, he turned south down Roes Welcome.

Dobbs, whose influence originated the expedition, disappointed with the results, erroneously accused Middleton of having been bribed by the Hudson's Bay Company to avoid deliberately the discovery of a north-west passage, and although the Admiralty seemed satisfied with Middleton's good faith, Dobbs was not, and his influence and energy were sufficient to bring about another expedition (Ellis, 1748 and Drage, 1748) under Captains W. Moor and F. Smith, the former being the same Captain Moor who had commanded Middleton's second vessel. They mapped Wager Inlet to its head, including the tidal lake, and some of the country beyond. Then, owing to the lack of further instructions, they returned to England without visiting

Repulse Bay, although it was still only August.

No further attempt was made to find a passage in this direction until Parry (1824) in H.M.S. *Fury*, accompanied by Lyon (1824) in H.M.S. *Hecla*, sailed into Repulse Bay via Foxe Channel and Frozen Strait, thus finally proving the correctness of Middleton's statements. After finding no outlet to the west from Repulse Bay, the expedition sailed through Hurd Channel, and, having mapped Gore Bay and Lyon Inlet, wintered near the south-east point of Winter Island. Next summer they continued up the coast of Melville Peninsula to Fury and Hecla Strait, where, in the narrows, they were blocked by solid ice from shore to shore. The following winter was spent at the island of Igloodik, and, in the next summer, another attempt was made to penetrate the strait; but as there appeared to be no more hope of doing so than in the previous year, the attempt had to be abandoned, and Parry expressed his opinion that the strait could never be used. Although both Baffin and James had sailed well to the west in Foxe Channel, Melville Peninsula had previously been seen only by Middleton, and then only the north side of Frozen Strait. It was named by Parry (1824, p. 549) after Viscount Melville, First Lord Commissioner of Admiralty at that time.

In 1846, Rae (1850) left Churchill with two boats and twelve men. He made



a successful voyage to Repulse Bay where he arrived in July, 1846, and spent the winter at Fort Hope at the head of Gibson Cove, where the ruin of the rock house which they built is still to be seen. Soon after arriving at Repulse Bay, they hauled one of their boats as far as Committee Bay by a series of lakes and portages, but the amount of ice there made progress impossible. During the following spring Rae made a sledge journey to the west, mapping the coastline as far as Boothia Isthmus, and later another journey to the north up the west coast of Melville Peninsula to Cape Crozier. This coast he also mapped and he and those with him are still the only white men to have visited the greater part of it.

In 1853-54, Rae (1855) made a second visit to Repulse Bay, which, like the following expedition of Hall, had for its chief purpose a search for information concerning the fate of Sir John Franklin and his party. During that second winter at Repulse Bay, Rae lived in a snowhouse close to his old camp. In the spring, he travelled by sledge to the west, reaching the northern end of Rae Strait.

NEW NAMES GIVEN BY THE BRITISH CANADIAN-ARCTIC EXPEDITION

New Names	Derivation
Whale Sound	Numerous white whales seen there in 1937.
Polecat Harbour	Our boat, the <i>Polecat</i> wintered there in 1936-37.
October Island	We landed there on October 1, 1936.
Garnet Island	Garnets very plentiful there.
Gull or Herring or Herring Gull Inlet	(Depending on what the Geographical Board decides to use on map) from the Eskimo name.
Brown Lake	After W. E. Brown of the Hudson's Bay Company.
Ford Lake	After J. Ford of the Hudson's Bay Company.
Bennett Bay	After P. M. Bennett of the B.C.A.E.
Jenness River	After Dr. Diamond Jenness of Canadian National Museum.
Freuchen Bay	After Peter Freuchen of the Fifth Thule Expedition.

NOTES ON THE MAP

The accompanying map is compiled from surveys of Parry (1824), Rae (1850), Hall (1879), Mathiassen (1933), and the British Canadian-Arctic Expedition (cf. Bennett 1940 and Manning 1941). The portions mapped by the British Canadian-Arctic Expedition were: between Cape Wilson and Point Elizabeth, Frozen Strait, Southampton Island, and Repulse Bay to and including Wager Bay. The coast between Wager Bay and Cape Fullerton was also mapped and a position on it fixed by the Expedition, but it is not available for the present map.

Parts of the east coast of Committee Bay were mapped by Baird, but it did not seem wise to attempt to fit this work into Rae's, from which it differed considerably, without Baird's assistance.

The dotted coastline at the head of Parry Bay I have put in chiefly from memory without angles.

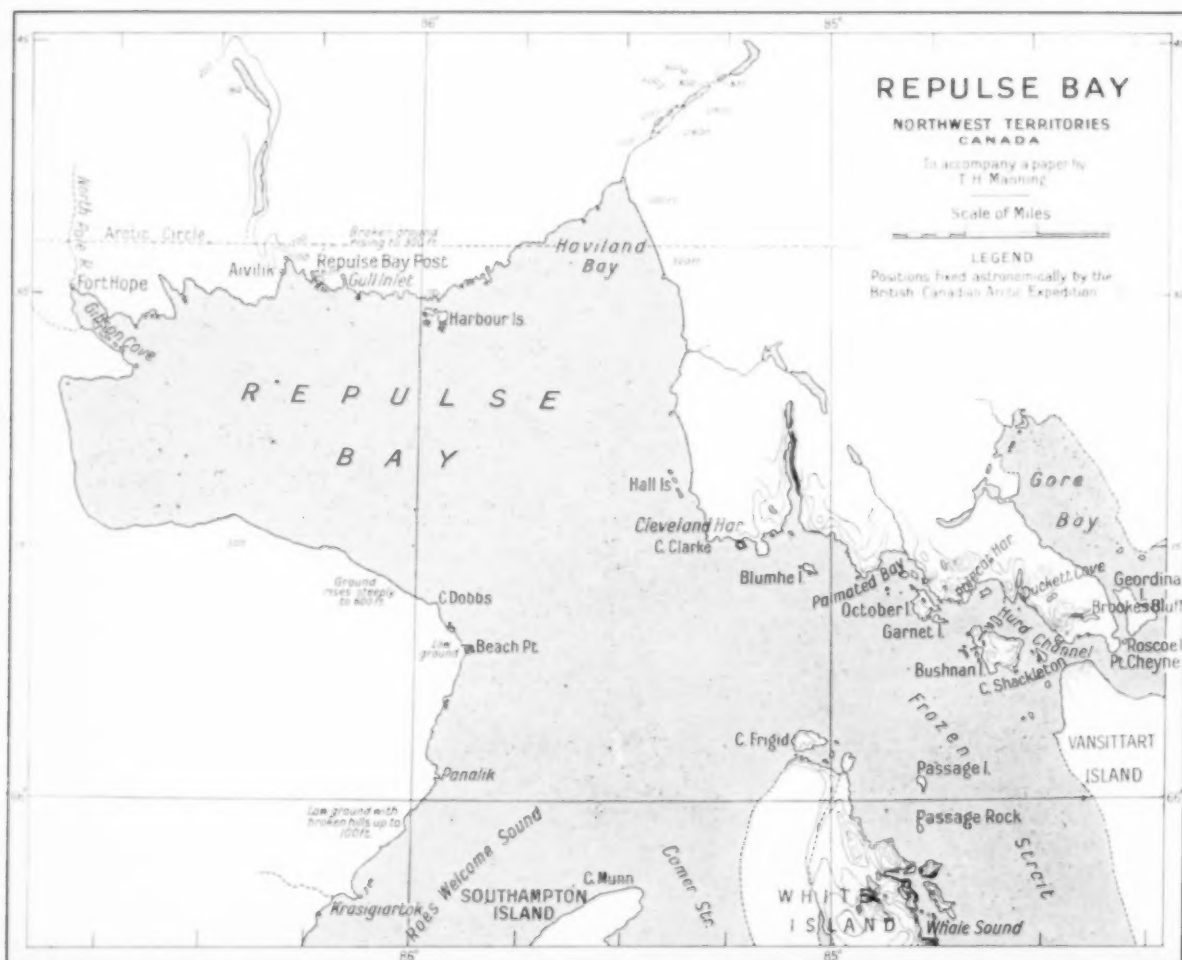
Most of the work at Repulse Bay and Frozen Strait was done by Bennett and Baird, and that between there and Wager Inlet, by Bennett alone.

In 1864, Hall (1879) was landed south of Wager Inlet where he spent the winter. The next spring he travelled to Repulse Bay, his base from 1865 to 1869. He made two sledge journeys to the west, one in 1866-7, and the other in 1869 (map opposite p. 346). He also made a journey to Igloolik, crossing the land from the head of Lyon Inlet to Jenness River (map opposite, p. 346). On these journeys, he did considerable mapping of territory which has not been revisited. In his account, Hall mentions seeing several whaling vessels at Repulse Bay, and from this time, or probably some years earlier, until the conclusion of commercial whaling, whales were doubtless hunted regularly in the district.

The next expedition to Repulse Bay was the Fifth Thule under the leadership of Rasmussen (1925 and 1927). This expedition had its base on Denmark Island, a little to the north of Vansittart Island, from 1921 to 1924. From this base several mapping journeys were made up the east coast of Melville Peninsula by

Freuchen and Mathiasen (1933), and down the Roes Welcome coast to Chesterfield by Freuchen and Birkett-Smith (1933). Mapping, however, was of secondary importance to their archaeological and ethnological work, and they were not equipped with radio for the exact determination of longitude. Other journeys, on which no survey was done, were made by this expedition,—notably Rasmussen's in 1923-24 from Repulse Bay to King William Island, and along the Arctic coast eventually to Siberia.

Trading posts were established by the Hudson's Bay Company at Repulse Bay in 1921, at Igloolik in 1939, and at Wager Inlet in 1925. For the last few years the trading post at Wager Inlet has been run by an Eskimo as an outpost, first of Chesterfield, and then of Repulse Bay. In addition to these, Reveillon Frères had a trading post at Repulse Bay from 1924 to 1936. The Roman Catholic mission also has establishments at Repulse Bay and Igloolik, as well as a missionary living in



the Pelly Bay district. The R.C.M.P., whose nearest station is at Chesterfield, usually make a sledge journey from there to Repulse Bay by the coastal route during the spring.

In 1919, the Hudson's Bay Company experimented with tractors on a route between Wager post and the mouth of Back River (Brown, 1936) in hope of being able to supply the King William Island post by this method rather than by the risky sea route from the west. Though apparently fairly successful, the attempt was not repeated. In 1923, J. Thom, the post manager at Repulse Bay, made a journey toward Pelly Bay, but no account of this has been published.

Physiography

The area under discussion is very much larger than Southampton Island, and my knowledge of it is much more superficial, being the result of one winter spent at Repulse Bay, and dog-team trips made therefrom; one spring spent on the north side of Frozen Strait, and a boat journey from Igloolik to Cape Fullerton with a few months spent at the latter place.

The following notes on the coastline from Igloolik to Cape Fullerton are made chiefly from observations taken during a boat journey between these two places in 1940, as this was the only time I visited some parts of the coast in question. They are, however, supplemented by observations taken during a sledge journey from Cape Fullerton to Repulse Bay, another from Repulse Bay to Cape Wilson, a number of short trips around Repulse Bay and Frozen Strait, and a sledge journey along Wager Inlet. Inland, the only journeys of any importance were from Repulse Bay to Daly Bay (on which I was accompanied as far as Wager by Bennett), one some fifty miles inland from Wager toward Back River, and another from Repulse Bay to Committee Bay.

The other members of the expedition made several important journeys. Bennett made a complete survey of Wager Inlet, returning to Repulse Bay by the coast, and later made another trip to Wager, again following the coast. Baird made a trip to Committee Bay, and followed the west coast of Melville Peninsula to the north of Prince of Wales Island. Bray and Rowley travelled north to Igloolik, and then to Piling in west Baffin,

whence they returned to Igloolik. From there they made a second journey to Baffin Island where they separated, Rowley continuing on to Pond Inlet to join the R.M.S. *Nascopie*, and Bray proceeding to Arctic Bay, whence he returned to Igloolik to join the *Thérèse*.

On the boat journey from Igloolik to Cape Fullerton, I was accompanied only by my wife. We left Igloolik on September 8, and reached the Repulse Bay post on September 27. Leaving there the following day, we continued on our journey and arrived at Cape Fullerton, October 13. As the ice had by then begun to form in some of the smaller bays, conditions made it impossible for us to continue in an open boat, and our original plan of going on to Churchill had to be postponed till after freeze-up. Because of our anxiety to get as near Churchill as possible before freeze-up, the unreliability of log readings owing to tides, and the fact that we sailed a considerable portion of the way at varying speeds, very little mapping was done on this trip.

The coastline from Frozen Strait to near Cape Fullerton had already been mapped by various members of the British Canadian Arctic Expedition in 1936-7. Judging from the general accuracy of Parry's map of the southern part of the east coast of Melville Peninsula, I did not expect that we should be able to improve it in any way. In this I was wrong; Parry's map of the bay that bears his name proving quite unrecognizable. Unfortunately, the weather was bad, and we could not afford the time to wait till it was suitable to take astronomical positions. Without them a traverse would be of little use for by the time we had realized the inaccuracy of the map, we had already lost our position on it, and did not find it again with absolute certainty till we arrived at Cape Wilson. On re-reading Parry's account (1824, p. 489) of his voyage to Igloolik, the reason for inaccuracy of this portion of his map became obvious. During his first summer, he was diligently searching for a passage through to the west, and in order to avoid any possibility of mistake, all the inlets were searched and mapped by the ship's boats. But during their first winter on Winter Island, they met a number of Eskimos who drew a map of Melville Peninsula, giving the position and description of the strait now called Fury

Eskimo woman



and Hecla, so that, after leaving Winter Island in the spring of 1822, Parry made his way there as quickly as ice conditions and winds would permit. Unfortunately, I did not have the Fifth Thule map of Melville Peninsula (Mathiassen, 1933) with me at the time; but on looking at it since, I find it is undoubtedly an improvement on that of Parry, though, at the same time, it shows several notable discrepancies, and the southern half of Parry Bay, at least, is perhaps best delineated by Hall (1879, p. 346).

Igloolik and Neerlo Nakto islands, and the eastern part of Melville Peninsula from Alagnuk Point to the south-east corner of Parry Bay, consist of disintegrated limestone very similar to that of Southampton Island, though when viewed from the coast it appears more uniform in height, with few, if any, bands of marshland. In most places it rises rapidly by terraces parallel to the coast, to about 30 feet, but inland, it appears very flat. Along the south coast of Parry Bay, the limestone forms a band varying from 100 yards to three or four miles in width, which ceases about 10 miles west of what I presumed to be Cape Robert Brown. From there southward to Cape Fullerton and beyond, the coastline is composed entirely of crystalline (probably Precambrian) rocks, chiefly reddish granite and gneiss. To the west, the disintegrated limestone appears again on Wales Island and Simpson Peninsula. As usual, the sea bordering the limestone coast is for the most part shallow.

Doubtless careful search would reveal several exposures of limestone *in situ* where small brooks have cut through the upper layer of granite and stones, but the first exposure we saw was at Jenness River where about 30 feet of limestone are exposed in place. Here, however, there is only a narrow strip of limestone along the coast, and crystalline rocks begin about a mile up the river. The limestone exposure over much of this distance is covered with detritus, but at the best place the apparent dip of the limestone strata is 45°, while at another place it is nearly vertical. The strata of the Ordovician or Silurian limestone in Baffin and Southampton Islands normally lie horizontally, and the present exception may be caused by local subsidence due to the steep slope

Eskimo child

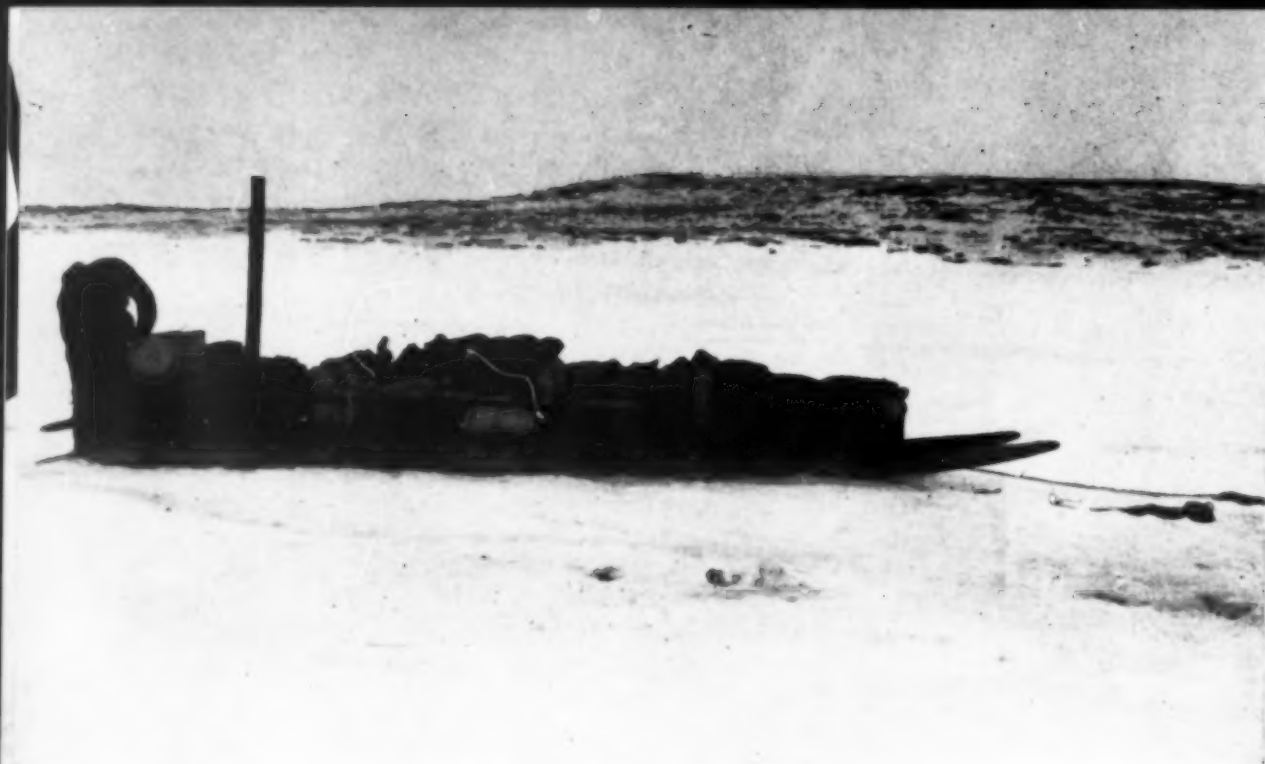




Feeding time, Pole-
cat Harbour, June,
1937



Dog team leaving
Repulse Bay.



Taking summer supplies to Polecat Harbour, spring, 1937.

of the crystalline rock on which it rests, particularly as the disintegrated limestone area to the north-west, and the small peninsula to the east, have the characteristic flat surface of horizontally stratified rocks. The limestone contains a fair number of fossils, chiefly corals, and is rather more massive than usual.

On the west side of the brook, the disintegrated limestone and crystalline rocks rise steeply for about 200 feet to where a band of crystalline limestone begins. Above altitudes of approximately 400 feet, the hills are capped with other crystalline rocks which can, in places, also be seen below the crystalline limestone. The whole dips at an angle of about 45° toward the north-west. Bands of crystalline limestone continue along the coast to the east for 12 or 15 miles. Mathiassen (1933, p. 78) mentions the presence of quartzite north and east of Quartzite Lake, but he probably failed to identify it correctly.

The bay into which Jenness Brook flows is very shallow, and at low tide a considerable area of rather dark sand is exposed. Except for a few yards on steep beaches, sand is very rare along the shore of western Hudson Bay or Foxe Basin.

From Cape Robert Brown to Cape Wilson, the coast is rather straight and bold, the Precambrian rocks rising to

about 600 feet within a short distance of the shore. At Cape Robert Brown, this Precambrian scarp swings to the north-west, at first coinciding with the shore line, and bordered with limestone, as mentioned above. The scarp continues westerly past the south-west corner of Parry Bay for 15 miles or more, and then swings gradually to the north without losing any of its abruptness. From a little way out to sea, the low-lying limestone disappears from sight, while the high land behind can still be distinctly seen.

Although we watched carefully for the Barrow River, and probably heard it, we failed to see the mouth, the noise of the river being mistaken for surf.

We mapped the coast from Cape Wilson to Point Elizabeth, at which point, Parry's map shows a distinct improvement. This stretch of coast is described by Mathiassen (1933, p. 98) as "primitive rock planeland, wholly, or almost wholly, buried under a marine alluvium". It is true that the land in the vicinity of Cape Wilson is rather flat, with a broad valley running toward the north in which post-glacial deposits may possibly occur; but small rock ridges and glacial boulders are very apparent along the shore, which resembles the country from the head of Freuchen Bay to Point Elizabeth, the

most obvious characteristics of which are the glacial boulders and rocky ridges. Although probably less than 100 feet in height, Point Elizabeth, because of its steep southerly slope and the extreme lowness of the coast to the north, is quite outstanding, especially when viewed from the south. The broken hills which form the north shore of Freuchen Bay swing some miles inland to join those which terminate in Adderly Bluff. The shores of Blake Bay somewhat resemble those of Freuchen Bay. Of course I do not wish to dispute that marine alluvium does occur in patches, and particularly in hollows, but only that it is characteristic of the coast.

Turton Shoals, viewed from two or three miles to the west, appeared as a single island nearly three miles long, and about 25 feet high. At a distance, it resembled limestone, but might be a glacial moraine, or even a post-glacial marine deposit.

We sailed through Hoppner Strait between Winter Island and the mainland. It was very shallow, probably drying at low tide, and with a very strong flood tide setting to the north. It is possible that we missed the main channel.

On the south side of Lyon Inlet the hills are noticeably higher, especially toward Cape Martineau where they rise steeply to 700 or 800 feet. The peninsula lying between Lyon Inlet and Haviland Bay is high hilly country with well-formed rounded valleys. Some of the higher points may reach about 1,000 feet. It is cut off from the rest of Melville Peninsula by a chain of comparatively low-lying lakes running from the head of Haviland Bay to Ross Bay. Good harbours
(20 lines deleted here by censor).

The coast of Repulse Bay is mostly steep and rocky, with hills rising to a maximum of about 600 feet. The north and west coasts of Haviland Bay are low. Cape Hope is probably about 400 feet high, but going down Roes Welcome from Beach Point to Cape Smith, the land is very low, rocky and barren with small, smooth, glaciated ridges of granite and gneiss, the whole being liberally strewn with glacial boulders. The water near the shore, and probably for many miles out, is very shallow and dotted with numerous shoals and small islands.

The high southern shore of Wager Inlet gradually becomes lower toward Cape

Dobbs, which at the extreme point is no higher than Cape Smith at the north side of the inlet. But from there to the south, especially for the first twenty miles, there are some hills rising to about 300 feet close to the shore, and in general this half of the Roes Welcome coast is higher than that to the north. For a distance of from 25 or 30 miles north of Whale Point, the water is a little deeper. There are fewer shoals here, and apparently no islands. Near Cape Fullerton, for five or more miles out, are drying shoals and numerous small islands.

On February 3rd, 1937, accompanied by Bennett, I went from the south-west corner of Repulse Bay to Douglas Harbour on the north shore of Wager Inlet, then up the inlet to Wager trading-post, leaving a few days later for Chesterfield trading-post by the direct land crossing to Winchester Inlet. On both these journeys compass traverses were made. Unfortunately, these are not available for the present map, but it is doubtful if single traverses of this kind, particularly when made in winter, would show information of value, as the country consisted of rather uniform, broken hills without well-marked valleys. Those valleys and streams, which we saw, ran, for the most part, diagonally to our course toward Roes Welcome. I would give a more detailed description of these routes, but my diary of these journeys is not available at present. There was no particular obstacle to either journey, but the natives usually prefer going the long way round by the coast, though they do occasionally cross overland from Wager Inlet to Repulse Bay, customarily joining Wager further to the west — as indeed we had meant to do. I know of only two parties who have crossed direct from Wager to Daly Bay, though many years ago it is said to have been done regularly by the Eskimo. If this journey be made in a direction opposite to the one I took, considerable difficulty may be encountered in getting down to the ice in Wager Bay if the correct route is not followed.

As Bennett mapped the shore line of Wager Inlet, I shall quote his description (1940, pp. 117-118): "Wager Inlet is about 100 miles in length with a narrow entrance three miles in width at its neck running into Roes Welcome. This channel remains open throughout the year, a great mass of drift ice flowing in and out with the tides.

Fifteen miles from the entrance, the inlet broadens out into a bay some 15 miles in width, and from this point the sea is frozen over. The southern shore is generally higher and more precipitous than the northern, and both rise from low hills at the entrance till they reach their maximum height about 60 miles west. Here there are precipitous bluffs on the southern shore rising to 1,000 feet above sea-level, whilst the peaks a few miles inland are nearly 2,000 feet high. Opposite these is a prominent cliff of red gneiss on the northern shore, about 1,000 feet high, which forms a landmark visible from all parts of the bay. This feature known as MacKay Bluff, is unmistakable, as it is the only precipitous bluff on the northern shore. Twenty miles west of MacKay Bluff, the bay divides into two, and at the head of the southern branch are the narrows which lead into the salt-water lake at the head of which the Hudson's Bay Company post is situated. The entrance to this lake becomes a waterfall at low tide, and the channel remains unfrozen throughout the year. The lake is about 18 miles long and two miles wide, but, surrounded by 1,000-foot hills, it appears narrower.

I returned from Chesterfield to Wager by the coast, cutting overland from about 20 miles south of Cape Dobbs to avoid the open water at the mouth of the inlet. This

crossing is about 30 miles in length, the last part of the way being through steep-sided valleys, where there is often rather deep snow. Going north from Wager by the coast, it is also necessary to make a land crossing of about 20 miles in order to avoid the narrows which never freeze.

Near the mouth of Wager there is a whirlpool which turned the *California* round two or three times (Ellis, 1748, p. 250) and more recently has done the same to the schooner *Fort Severn*. The configuration of the land would suggest that Wager Bay may, in places, be of considerable depth, especially toward the south side. Ellis (1748, p. 257) states that in Ford Lake, no bottom was obtained at 140 fathoms. He also says that, though the water at the surface of the lake was fresh, the water obtained at a depth was as salty as the ocean. It would be interesting to know if this were still so; also, a comparison of the present condition of the reversing falls with the description given by Ellis (1748, pp. 256-257)—where he states the tidal rise and fall to be four feet—might give evidence as to the possible uplift of the land during the last two hundred years. Unfortunately, as we were not in this district during the summer we were unable to make these observations.

Of my journey inland from Wager toward Back River, I can say little owing to the lack of the above-mentioned notes. On the south side of Lake Brown there is a steep scarp with the hills rising to about 1,000 feet. It is interesting to note that these are not shown on the map illustrating the journey of Lieut. Schwatka from Daly Bay to King William Island in 1879 (Gilder, 1881), and therefore it is probable that they were either further west than the route shown, or that the east end of Ford Lake, and also probably Wager Inlet, is further east than the position shown on the accompanying map. Our inability to get a time signal at Wager post made the longitude of this doubtful. (Bennett, 1940, p. 118).

The land at the west end of Lake Brown is comparatively low and rolling, and, after some twenty or thirty miles, appears to slope away toward the south-west. In that direction there is said to be fairly flat land toward Baker Lake. Turning toward the north after passing some glacial moraines, the hills gradually increase in size and



Stranded-ice near Daly Bay, June, 1936

Loading the *Polecat* at the floe edge near Gamet Island (Frozen Strait) at the end of June, 1937.

steepness. These are probably the ones encountered by the Schwatka expedition (Gilder, 1881, p. 68) and noted as being from 800 to 1,000 feet high.

Ice Conditions

The notes on the ice conditions given below refer to the sea around Southampton Island as well as to the coast with which the rest of this paper is concerned.

In 1936, we left Churchill in a 30-foot motor-boat, the *Polecat*, near the beginning of June, and arrived at Southampton Island about two weeks later, having covered a distance of 500 miles along the coast of Hudson Bay. During this trip we were held up for only a few days by ice. Compared to what might have been expected at this time of the year, this delay was very slight; it may have been due to currents or the prevailing winds, which tend to keep the ice away from this shore of the bay. Had we left near the beginning of May, as we had originally intended, I think we should have had but little more difficulty due to ice. As early June is the time when the bay ice is breaking up toward the south end of Hudson Bay, it is possible that there is even more ice there at that time than a month earlier.

Most of the ice that we encountered was in the vicinity of Marble Island, Daly Bay, and Roes Welcome. For the greater part of the way between Churchill and Eskimo Point, there was no pack ice in sight. When we arrived at the Bay of God's Mercy, there were only scattered pieces of ice which had broken from the firm ice at the head of the bay. From about July 12 to July 18, the ice was tightly packed into the bay, but it was rapidly moved out by a north-west wind on the latter date. From that time till about August 23, when the ice came in to South Bay, we saw none. Most of this time was spent at Walrus Island.

We left Coral Harbour about August 27, and saw no ice after going through the scattered pack in South Bay till we were near Cape Munn at the north-west of Southampton Island. Here we were held up for a few days around September 20, but only because a strong north-west wind had packed the ice around us on the Southampton shore, leaving the opposite side of the Welcome quite free. About a week later, there was only a little in



Comer Strait, but the south end of Duke of York Bay was full of ice which appeared to me as if it had never left the bay. A few calm, frosty nights at this time froze it solidly together, but of course it again broke with the first wind. When we were crossing Frozen Strait on October 1, we saw only two or three pieces of ice; these were being carried by the tide at such speed that, at the first glimpse, they were mistaken for motor-boats.

In 1937, we had hoped to cross Frozen Strait about the middle of June, but though it was often possible to move through the islands and along the north shore, the centre of the strait remained hopelessly blocked till a westerly gale in the middle of July partially cleared the western end. Even then, though the water was mostly open, strings of ice drawn together and closely packed by the tides caused us considerable difficulty in pushing through with a small boat which was less affected by the current than the deeper floating ice. Even after we had succeeded in reaching White Island, we made but little progress, as the ice still clung to that shore and soon began to work back into the strait from the east. On August 1, a strong southerly gale completely cleared the strait, and we were able to proceed unhindered except for a little ice coming out of Duke of York Bay. Here we had to stop for a few days to obtain an



Eskimo spring camp at Wager Bay

North side of Frozen Strait, July, 1937



astronomical fix and the ice once more returned. We were completely blocked at Canyon River till August 22. Although it would have been possible to leave before this, we had insufficient gasoline to continue pushing through ice which rendered the use of the log impossible, and mapping, as a consequence, inaccurate. Though blocked here, the water back toward Frozen Strait always appeared clear.

From Canyon River to Deer Island, where I arrived on September 1, there was always ice in sight, but it was rarely troublesome. A north-east wind, however, began to bring it back on the 6th, and the next day, the rudder having been smashed and a large amount of gasoline used, I decided to abandon for the winter my boat journey to Baffin Island. A few days later the ice cleared, and, except for loose pieces in East Bay, was not seen again till freeze-up.

In the hope of getting an early start next spring, we had the boat hauled overland to Native Point during the winter, but that spring, as far as I could tell from the hills at Seahorse Point, there was as much open water to the north side of Bell Peninsula as there was to the south. During the first part of May, 1938, I spent several days at Native Point. The ice there at this time was quite loose, and I thought it would not have been impossible to have gone to Seahorse Point on the boat had she been ready. While we were travelling from Native Point to Seahorse Point, the ice remained loose as far as Leyson Point, but from there to Seahorse Point, where we arrived on May 19, it was packed in as tight as possible. We had had a south to south-east wind for some time.

The winds, which were not very strong, failed to make any impression on the ice till May 30; neither was there any water sky. Then a very strong wind, which had been south for two days, shifted to the west, and the ice went quickly. The wind continued strong for a few days, shifting to nearly every direction in turn. After this there was very little ice visible till June 19 when some began to arrive, though the weather was calm. During the next few days the wind blew strongly from the north-north-east to east, and the ice packed in firmer and firmer, till by the 23rd, there was no sign of water. It continued thus, as did the wind, till the 27th, when a little water appeared to the south-

east. From May 30 onward, the dark sky indicated open water to the west of Leyson Point, and there also seemed to be a little open water on the north side of Seahorse Point, even with a north wind. On the other hand, a north wind packed it in on the south coast. An east wind on July 3 blew very strongly for twenty-four hours, but only moved the ice about two miles, and it was back in twenty-four hours though there was no wind. The ice in Junction Bay broke up on that day. On the 5th, most of Junction Bay was clear, and we followed a narrow passage along the coast to Leyson Point where the ice was much less tightly packed, and where there appeared to be open water about ten miles off the coast. On June 10 there was an east wind which later changed to a north-east, and packed the ice in, the clouds at the same time giving no indication of water off shore. The ice remained much the same till the 16th, when a strong east wind pushed it right past us, presumably through Evans Strait.

On the 17th, we left for Nottingham Island, and on the way we saw no ice till we were almost there, and then only a few scattered pieces. There the men at the government radio station told us that ice had blocked them in until a few days before; the same conditions applied to Cape Dorset post (south-east Baffin). Between Nottingham and Dorset, we saw only a little, very loose, scattered pack.

There is no doubt that there the north and east winds were exceptionally prevalent that spring. The former would bring the ice from Foxe Basin, and the latter would push it down to Hudson Bay rather than through the strait. To the winds may be attributed the comparative clearness of the west Baffin coast later that year.

I have already mentioned Parry's description of the ice conditions in Fury and Hecla Strait. Captain Bartlett is quoted in the *Arctic Pilot* (1931, p. 187) to the effect that the strait appeared quite free of ice on August 29, 1927, and that with sufficient time and favourable weather, he believed that a passage would be possible during most years. The editor, however, justly remarks that Bartlett was some 50 or 60 miles from the barrier which finally stopped Parry's progress. On September 4, 1940, we crossed from the western exit of Maxwell Bay to Igloolik, coming upon only one piece of ice, the water being clear as far as we could see through the strait. On

arriving at Igloolik, we were told that the ice had cleared from there some time earlier. Now, though we were never nearer than 40 miles to Amherst Island where Parry was blocked, had the strait to the west of the island been packed, it is almost incredible that the permanent current coming from that direction, as well as the strong north-west wind which we had when crossing and for two days at Igloolik should not have brought scattered pieces through—unless it was frozen from shore to shore, which I think unlikely, although it appears that that was the condition as late as September 17 in 1822 (Parry, 1824, p. 351). The year 1940, like many other years, was very exceptional as far as ice was concerned. This was probably due to the strong north-west winds which prevailed throughout the summer.

In the fall, 1940, the Hudson's Bay Company's schooner, the *Fort Severn*, met with ice about September 4 off Lyon Inlet. During the continuation of our voyage to Cape Fullerton, the only ice we saw was some stranded by spring tides between Lyon Inlet and Repulse Bay. According to Eskimo report as well as past records, the east coast of Melville Peninsula is usually navigable, though some ice may be found especially near Lyon Inlet.

It appears that once the greater part of the local ice has blown out of Roes Welcome, (which has usually happened before the beginning of August), it is unlikely that sufficient will return to hinder navigation seriously. The same cannot be said of Frozen Strait, which was found blocked by Capt. Back in 1836,* Captain Spencer in 1878, and Captain Fisher in 1896, (*Arctic Pilot*, 1931, p. 174), and, as far as I know, was not navigated by other than Eskimo boats and our small *Polecat* from the time of Parry in 1822 till 1937, when the M.F. *Thérèse* went through on her way to Igloolik. In 1939 the same schooner passed through, followed by the *Fort Severn* in 1940. Mathiassen (1931, p. 23) mentions that Capt. J. Murray in the *Active* once reached Repulse Bay by this route.

It is not improbable, however, that whaling ships, and certainly their hunting boats, went through, though they have left

no record. The fact that Frozen Strait was free of ice in September, 1940, and in September, 1936, and at least for a time in 1937, may have been accidental, but I am inclined to think that it would be very seldom that a powered schooner could not get through, especially if the north shore were followed, providing there was sufficient time to await favourable conditions. I have no doubt that in the years when Roes Welcome freezes, Frozen Strait is, on the average, more blocked and clears later in the spring, for the movement of the ice indicates a slight permanent current to the west through the strait. In mid-May, 1925, when Roes Welcome was not frozen, G.S. Ford, Hudson's Bay Company's post manager at Southampton Island, crossed Frozen Strait in a whale boat. In 1937 when Roes Welcome was frozen, this would have been impossible, the ice being so tight that one could more easily have walked across.

Roes Welcome was frozen in the spring of the years 1932-35, but not in 1936. It was again frozen in 1937-38, and I think in 1939, but not in 1940. Previous to 1922, it appears more often not to have frozen. It did not freeze in 1925, and apparently not in 1923, though Frozen Strait was frozen in that year (Mathiassen, 1931, p. 22). Comer (1920, p. 7), from observations during a discontinuous period between 1893 and 1920, states that the Welcome was frozen only two winters in twelve, while Munn (1922, p. 56) says it was not frozen in 1916-18. The bridge that forms in the Welcome is usually between Whale Point and Ell Bay. The ice is usually rough, as the freezing is caused by pack jamming on some shoals near the centre, and freezing together. Sometimes there is smooth ice near the floe on the southern side. Once thoroughly frozen, this bridge does not break down till June, though it is possible that, as stated by Mathiassen (1931, p. 22), thin ice may form between the pack, and be disrupted after a day or two. After a few days spent on the centre of Southampton Island, it is usually possible to be fairly sure from the colour of the clouds whether the Welcome is frozen or not. An Eskimo told me that he and two others with five dogs once crossed Roes Welcome on the moving ice, but it took nearly a week, and he did not

*Actually Back never entered Frozen Strait. *Terror* was first beset and began its drift.

It was to the west of Vansittart Island that the

wish to repeat the experience. North of Wager, the Welcome never freezes.

I have not heard of Frozen Strait freezing since January, 1923, when Mathiasen (1931, p. 22) and Freuchen crossed. On this occasion, the ice lasted through the winter as at Roes Welcome. It is said by the Eskimo to freeze only when there is no

pack ice in it, and thus to be always smooth. This seems to be very reasonable, as the strong tides acting on the deep floating pack would soon smash any young ice. It is possible that it sometimes freezes and breaks again without the knowledge of the Eskimo, but whether it would be fit to cross is doubtful.



Above:—Sheltering behind a shoal near the mouth of Jenness Brook.
Top—Cliff of crystalline limestone



Waiting for the ice to open near south of Marble Island, June, 1936.

This whale boat is typical of those used by the Iglulik Eskimos.



ESKIMO INHABITANTS

THE ruins of old Eskimo stone houses, especially around Repulse Bay, are almost, if not quite, as numerous along this coast as they are on Southampton Island, though they have been abandoned for a considerably longer period. There is no historical record of their use, if we except that of Parry (1824) and Lyon (1824, pp. 235-236) at Igloolik in 1823, which refers to houses constructed entirely of bones of whales, unicorns (narwhals), walrus and smaller mammals, roofed over only during the winter, and then only with skins. These were of a less permanent nature than the houses of the Thule culture, and resembled those which are very occasionally built at the present time, chiefly for use during the fall.

The only excavations in this area were made at Naujan in 1922 by Mathiassen (1927), and at Adverdjär (Cape Matthew Smith) near Igloolik in 1939 by Rowley (1940). The first-mentioned site, which Mathiassen considered to be about a thousand years old, belonged to the Thule culture, the other to the Cape Dorset. This latter Rowley thought to be slightly older than the Naujan site. It was remarkable in that there were no stone houses, the specimens being in a layer of sod above the sand (Rowley, 1940, p. 491). We were held up by bad weather at Jenness River and spent a day excavating one of a group of about six houses which we chanced to find there. An open-socketed harpoon head of the Thule type was found, but nothing else of interest.

Previous to Parry's expedition, very little was known of the Eskimos north of Cape Fullerton. There are, in fact, only two records of their having been met, though Richardson (1861, p. 115) states that the Hudson's Bay Company regularly sent a sloop to trade with them at Cape Fullerton; this probably accounts for the supply of steel knives observed by Parry (1824, pp. 503-504) among the Eskimos at Igloolik. The first recorded meeting with the Eskimos of Roes Welcome was that effected by Middleton's expedition in 1742 at Wager Inlet; the next, by the expedition of Moor and Smith in 1747 (Ellis, 1748; Drage, 1748) at the same place. Unfortunately, the records of these expeditions make but slight mention of the natives.

The coast from Cape Fullerton to Igloolik is now inhabited by the Igluling-

miut, the Aivilik, and the Netsilik Eskimos while a further branch of the Iglulik, Eskimos,* the Tununermiut, occupies the greater part of Cockburn Land (north-west Baffin Island).

The Aivilingmiut, who take their name from Aivilik, an old camping place at the head of Repulse Bay, differ so little from the Iglulingmiut that, for all practical purposes, they can be considered as one group insofar as language, customs, and implements are concerned; it is quite normal for them to intermarry, or to move from one district to the other. Although now scattered from Baffin Island to Chesterfield Inlet, the largest group being on Southampton Island, they still refer to themselves as Aivilingmiut. Around the middle of the last century, Aivilik was the centre of their territory, and it is probable that since Repulse Bay was then an excellent game district, most families would visit it now and again, and thus a considerable number would meet annually at Aivilik.

Mention of Aivilik as a meeting place is made by Boas (1888, p. 444-451) when he gives an account of the Eskimos at Repulse Bay throughout the year.

Though Boas took this account from the writings of Rae and Hall, whose own residence at Repulse Bay would naturally attract the Eskimos both from curiosity and the hope of trade, and though these movements were not an invariable rule, as is shown by the complete absence of Eskimos from Repulse Bay in 1854 (Boas, 1888, p. 446), archaeological evidence shows that Aivilik has been a very important camping ground, and Mathiassen (1928, pp. 26-27) estimates the number of habitation remains to be about five hundred.

While Igloolik has remained the centre of the Iglulingmiut, not so Aivilik. Aivilik means 'the place of the walrus', but the once numerous walrus have vanished, and the Greenland whales are now, of course, only accidental. With the disappearance of these large mammals, Repulse Bay can no longer support a concentrated population, and some of the natives have had to move farther afield. Even before the establishment of the Hudson's Bay Company's post at Igloolik, they were being forced by necessity, after two or three lean years, to move in that direction, in spite of the convenience of being close to the

* The terms Netsilik and Iglulik Eskimos are here used where reference is made to the whole or an unspecified part of the related groups brought under these headings by the Fifth Thule Expedition, while Iglulingmiut and Netsilingmiut are used when reference is made to the specific group. The literal meaning of "miut" is "inhabitants of", and is often used in the literal sense.

Repulse Bay trading post. In 1936, there were only two or three families of Aivilingmiut resident at Repulse Bay. In 1940, some of those who had moved to Igloodik in 1936, or a little earlier, had crossed to Baffin Island, and were moving around the north shore of Foxe Basin where caribou were numerous.

Boas (1888) compiled his map of the distribution of Eskimo tribes in this area chiefly from previous records of Rae, Hall and Schwatka and showed the whole of Rae Isthmus and Pelly Bay as far as Swanston Point, as well as the whole of Wager Inlet and the land a few miles further west, as the territory of the Aivilingmiut. Now, most if not all of the inhabitants of Repulse Bay proper are Netsilik Eskimos, though there were five or six families of Aivilingmiut at Gore Bay in 1937, and I believe most of these are still in that neighbourhood.

Just when the eastward movement of the Netsilik people began does not seem to be known. The Aivilingmiut now never visit Committee Bay, nor did they at the time of the Fifth Thule Expedition, though some could then remember a time when they did (Mathiassen, 1928, p. 22). Mathiassen (1928, p. 101) also says that many Netsilik Eskimos were then living at Repulse Bay, and Comer (1906, p. 479) mentions picking up on Southampton Island fourteen Netsilik natives who had drifted there on the ice from Repulse Bay in 1903. It therefore appears that the Netsilik Eskimos must have reached Repulse Bay during the last part of the nineteenth century, or about the time that the whaling vessels were regularly visiting it; possibly the desire to trade induced their movement. Although no serious incidents occurred when the Aivilingmiut, accompanying Rae and Hall on their journeys to the west, met the Netsilik Eskimos, their relations at that time were apt to be strained, and a little later, when the two groups met on the whaling ships, fist fights and perhaps more serious quarrels are said to have been not uncommon. They are now, however, on good terms, and intermarriage takes place.

In the spring of 1937, some of the Iglulingmiut as well as the Aivilingmiut who had moved to the north of Cape Brown, came in to Repulse Bay to trade, but with the establishment of the Hudson's Bay Company's post at Igloodik in 1939, they naturally ceased to visit Repulse Bay.

The Iglulingmiut, being able to secure great quantities of walrus for dog feed, had dog teams larger than those of all the other Eskimos; therefore, it was possible for them to make long trips to the trading posts. I was not at Repulse Bay when the Iglulingmiut arrived, but I heard that the average number of dogs per team was about 15, while one Iglulingmiut who traded at Pond Inlet was said to have had nearly 30. In 1936, however, a dog disease greatly reduced the size of their teams.

Unlike the Iglulingmiut, the Netsilik Eskimos from Pelly Bay (who trade at Repulse Bay once a year) had formerly very few dogs. Rasmussen (1931, p. 12) mentions that the first group of these natives that he met had only four dogs among eight people, but recently the size of their teams has increased. The number of dogs that an Eskimo keeps depends chiefly on his ability as a hunter and on the amount of game available in his district; but at intervals, varying from four to eight years, an infectious disease may kill as many as 80 per cent of the dogs.

In 1937 there were about 30 natives at Wager Inlet. They were mostly Netsilik Eskimos, perhaps Ukuhigjalingmiut who had married to a considerable extent with the Aivilingmiut. A few of the true Ukuhigjalingmiut, an inland group of Eskimos from Back River, usually trade at Wager post.

According to the 1931 census, the number of Eskimos on Melville Peninsula, Repulse Bay and Wager Inlet appears to have been about 310, but there are now probably not more than 230 actually resident at these places. They have for their centres the three trading posts of Igloodik, Repulse Bay, and Wager Inlet. The few natives who occasionally camp near Cape Fullerton or Whale Point usually trade at Chesterfield.

Besides the old stone houses mentioned above, tent rings, graves, or other stone buildings are to be seen on almost every convenient point along the whole coast. This does not necessarily mean that there was at one time a larger population, as the Eskimos have long been in the habit of deciding to camp for a summer or a winter at any one of these places, and their movements would, in the course of centuries, account for all the old camping sites.

Parry mentions meeting 219 natives

at Winter Island and Igloodik (1824, p. 492), and suggests that there may have been additional Iglulik Eskimos to the number of 300 or 400. This would make the total population slightly larger than that accounted for by the Fifth Thule Expedition (Mathiassen, 1928, p. 15); viz., 165 Aivilingmiut, 146 Iglulingmiut, and 193 Tununermiut, or a total of 504 Iglulik Eskimos. The 1931 census gives the total number of persons living in the territory (including Southampton Island but not Chesterfield) occupied by the Iglulik Eskimos as 703. Unfortunately, group designation is not given, but it is quite possible that at least 170 would be non-Iglulik, and this, if 20 Aiviliks are assumed to be at Chesterfield, would give about 550 as the number of Iglulik Eskimos at that time — a close approximation to Mathiassen's estimate.

Except for a regular camping ground at Beach Point, Roes Welcome on its west side (and, incidentally, on its east) has been almost deserted for the last twenty years or more. Whether this is due to the reduction of caribou, the extermination of musk-ox, the almost complete extermination of the Greenland whale and a reduction of other sea mammals, a combination of all these circumstances, or merely the fact that the district has acquired a bad name through accident or for semi-superstitious reasons, is not certain. The abandonment seems to have been gradual.

MAMMALS VIEWED IN THEIR RELATION TO THE ESKIMO

The notes below deal chiefly with mammals in their relation to the Eskimos, and are supplementary to the section dealing with mammals on Southampton Island (Manning, 1942).

Caribou: From the writings of the early travelers mentioned above, as well as from statements made by the Eskimos, it is clear that caribou migrated from the south across Rae Isthmus and Repulse Bay up Melville Peninsula. Although they moved in small herds, their total number was considerable. This migration has now ceased completely, at least as far as the eastern side of the isthmus is concerned. There are still caribou on Melville Peninsula, but they are scarce and consist of small herds moving erratically. Probably most are to be found on the western side, from some twenty miles north of the isthmus up to the south of Garry Bay, the area least frequented by the natives. In the winter of 1936-7, there were some near the head of Lyon Inlet, but this is not unusual. Some were also met by Eskimos crossing from Jenness River to the head of Lyon Inlet in the spring of 1937. The large Iglulik population has practically

exterminated the caribou from the northern half of the peninsula, but they are still quite numerous during the winter to the north of Fury and Hecla Strait, and there has recently been a migration of Eskimos from Melville Peninsula to this area. Some of the caribou may cross the frozen straits to Melville Peninsula.

On the latter half of our journey from Repulse Bay to Wager Inlet in 1937, caribou tracks were fairly numerous, but they had mostly been made in November or earlier. The same applies to the crossing from Wager post to Daly Bay, though here the tracks were more numerous, especially in the latter half where some comparatively fresh ones were seen. About 50 miles from the coast we saw tracks of Eskimos who were moving inland with their families, presumably in search of caribou. On the whole trip from Repulse to Daly Bay, I saw no caribou. Around Wager, caribou may be killed at all times of the year, but they are scarcest during the winter, beginning to increase in late April and early May. In the summer, several families, if not all, move inland with pack dogs for caribou hunting. On the short southern crossing from Roes Welcome to Wager Inlet, I saw two small herds and many fresh tracks. It is said that during the winter caribou can usually be met on this crossing as well as some miles inland to the west of Yellow Bluff. When I was travelling inland from Wager Inlet to Back River in April, winter tracks were fairly numerous, (I saw no fresh ones), though at about this time nine caribou were sighted and shot at Wager post. In late April, while crossing back to Roes Welcome on the north side of Wager, and again on a short land crossing half way to Repulse Bay, I saw several fresh tracks.

All the natives in this area are coastal, except the Ukuhigjalingmiut around Back River and perhaps one or two families at Committee Bay, so that the most serious effect produced by the reduction of the caribou is a lack of winter clothing. Although the two small groups mentioned above use fish to a considerable extent, they sometimes suffer from lack of food owing to the failure to obtain caribou; this was the case with the former in 1937.

The lack of caribou skin clothing is most apparent at Igloodik, and natives visiting Repulse Bay in 1937 were largely dressed in sealskin, and cotton-and-wool clothing — a poor substitute. However, the present movement of the natives around the north of the Foxe Basin coast toward Piling was expected to result in a larger number of skins than could be used in 1940. If this movement of the natives continues toward the long-unoccupied coast around Piling and to the south, it will be interesting to see how long the uncontrolled killing will take to exterminate the now numerous herds in that district, or to drive them back to inaccessible regions.

Musk-ox: Musk-ox were once, at least, fairly common throughout the district between Rae Isthmus and Daly Bay, although whether they ever came right down to the coast is not certain. There is no record of their occurrence on Melville Peninsula. The acquisition of guns by the natives and the encouragement given them by the whalers during the latter half of the last century to hunt musk-ox, both for the skins and for the meat, soon reduced their numbers. One Wager Inlet native, now about fifty years old, told me that he could remember killing musk-ox on the north shore of the inlet within twenty miles of the mouth. None of our party saw either musk-oxen or their tracks, although some had been killed by the Ukuhigjaling-

miut to the north-west of Wager in 1937, and also probably by the Pelly Bay natives, who were well supplied with horns. No killing of musk-oxen is now allowed, but even if the natives of the inland region are aware of this prohibition, it is neither possible nor desirable to prevent them from obtaining meat where they can in times of famine, which are likely to become even more common in the inland regions as the numbers of caribou are reduced. The solution is not in more diligent policing, but in the education of the natives — first, to avoid unnecessary shooting and waste of game, and secondly, to cache sufficient supplies of meat in the summer.

Polar Bear: Although bears are to be met occasionally all along the coast, they are nowhere numerous, and are very seldom seen up Wager Inlet. In Committee Bay they are said to be fairly plentiful. As far as I know, special bear hunts are not made except, perhaps, by the Committee Bay natives.

Barren-ground Bear: Lyon (1824, p. 175) was informed by an Eskimo from 'Noowook' (Cape Dobbs) that black bears were common in his country. This probably refers to the barren-ground bear which, though rare, still occurs to the west of Wager Inlet. From other reports, or lack of reports, it would appear that they were never numerous, or of much importance to the Eskimos.

Barren-ground Wolf: Wolves, once numerous, are now scarce, at least in winter. During our winter journeys we saw no tracks, and I cannot recall hearing of any being killed near Repulse Bay. They are probably almost, if not quite, extinct on eastern Melville Peninsula, where, in 1822 and 1823, they appear to have been both numerous and troublesome to the Eskimos (Lyon, 1824, and Parry, 1824).

Arctic Fox: My remarks on foxes in my Southampton paper (Manning, 1942) apply here with equal force. In 1936-7, when I was at Repulse Bay, there were no trading posts at Igloolik or Fort Ross, so that about half the Igloolik, and most of the Pelly Bay natives traded at Repulse Bay, visiting it once a year in the spring. The Pelly Bay natives required few necessities, and they paid little attention to trapping. At Igloolik, foxes did not appear to be very plentiful considering the size of the population, but the recent spreading out of the natives along the coast apparently increased the size of the hunt, which in 1939-40 was very good. This may be partly due to the encouragement given by the white trader on the spot.

In 1936-37, foxes were scarce at Wager Inlet and it is not perhaps, a very good district.

In the fall of 1940, at Cape Fullerton, where there were no natives and only one white trapper, foxes were numerous. The tracks indicated that probably 5 per cent of the foxes in this area were coloured although because of their superior cunning only one in eighty was caught. It seems that coloured foxes have been spreading north in recent years. Blues are perhaps a little scarcer in the Cape Fullerton and Repulse Bay districts than on Southampton Island — that is to say, fewer than 1 per cent.

Weasels: Weasels were scarce in 1936-7 throughout the area. They were also scarce at Fullerton in 1940. The Eskimos do not set special traps for them, but when they are numerous, many are caught in the fox traps.

Wolverine: I saw only one wolverine skin at

Repulse Bay in 1936-7. This had come, I believe, from Pelly Bay. But Freuchen (1935, pp. 97-101) states that several tracks were seen on Melville Peninsula by members of the Fifth Thule Expedition, and this is presumably the route by which they have reached western Baffin Island, where in 1938 we found them rather numerous. According to Freuchen, it is only some thirty years ago that they first reached Baffin, but their bones were found among the Eskimos of Melville Peninsula by Parry's party (Richardson, 1825, p. 293).

Lemming: Lemming, two species of which occur here, as on Southampton Island, are of importance only as one of the main foods of foxes. Lemming were scarce when we were in the Repulse Bay district between October, 1936, and July, 1937, and we saw neither lemming nor their tracks along the coast during the fall of 1940.

Arctic Hare: Hares were noted to be numerous along the north coast of Frozen Strait in both the spring of 1937 and the fall of 1940, and also along the west coast of Roes Welcome at the latter time.

Shrew and Parry Ground Squirrel: These two small animals do not occur on Southampton Island, but are both found at Repulse Bay, though the former is rather rare, and, as far as I know, does not occur much farther north on Melville Peninsula. It is of no importance to the Eskimos, though it may be of some small value as fox food. Ground squirrels are common at Repulse Bay, but gradually decrease in numbers toward the north of Melville Peninsula. They are occasionally eaten by the Eskimos, but practically no use is made of the skins in this district. During the winter they hibernate, or at least do not leave their burrows.

Walrus: Walrus are very numerous in the Igloolik district, and without them, there would probably be few, if any, natives there. On the remainder of the coast — that is, south of Cape Wilson — they are rather scarce. During my residence at Repulse Bay in 1936-7, I heard of only about twelve being killed — one near Lyon Inlet, and the rest outside Wager Inlet. Once numerous at Repulse Bay, they seem now to have almost completely deserted it, though they are sometimes seen around White Island. In July, 1937, we heard of some near Cape Frigid, and in September, 1940, saw one on a piece of ice in Frozen Strait. The natives, however, have not crossed Frozen Strait for a number of years. Anderson (1935, p. 80) quotes Mr. A. J. Thom, Hudson's Bay post manager at Repulse Bay in 1925, as saying that walrus were numerous there, though absent from Committee Bay. However, as early as 1922, Mathiassen (1928, p. 25) noted that walrus had to some extent disappeared from Repulse Bay. From what I have heard, there are now no walrus at Committee Bay. The few Netsilik Eskimos who now occupy the country take less interest than the Aivilingmiut in such hunting, and this may account not only for the apparent absence of walrus there, but to some extent also for walrus seldom, if ever, being killed at Repulse Bay. Another place where walrus were once numerous but are now apparently rare, is Cape Fullerton.

Ringed Seal: Ringed seals are probably fairly evenly distributed along the coast, and are the staple food of most of the population except the Iglooliks. They occur in Bennett Lake during the summer, and possibly in the winter, though they are not hunted there at that time.

Bearded Seal: When the weather was suitable, we saw these at most places while journeying down

the coast from Igloodik. I am told that they are numerous on the ice pans at Repulse Bay after the break-up. At least half the dog feed cached at the post for the winter of 1936-7 was bearded seal meat, and we were told that a good supply had been obtained in the summer of 1940.

Harp Seal: I have not heard of the occurrence of harp seals in Foxe Basin north of Frozen Strait where I shot one in June, 1937, and I do not think they are common there or at Repulse Bay, but the Eskimos say they are sometimes numerous at the south end of Roes Welcome.

Ranger Seal: In November, 1940, I shot two ranger seals at the floe at Cape Fullerton and saw others at the same time and place, but I know of no other definite occurrence of the species on this coast.

White Whales: White whales are fairly numerous around the mouth of Repulse Bay and Frozen Strait in the summer, and they are also said to occur there in the winter when the Welcome does not freeze. We did not see any north of Barrow River, but Parry saw a large number in Fury and Hecla Strait (Richardson, 1825, p. 337).

Narwhal: Although we saw no narwhals, they are said to occur in Frozen Strait, and perhaps at Igloodik, and narwhal bones are mentioned by Lyon (1824, p. 235) as forming parts of the Eskimo

house on the island. It is possible that a few come through Fury and Hecla Strait from the west, as they are certainly not common in Foxe Basin at the present time. Richardson (1825, p. 336) mentions their occurrence in Frozen Strait.

Greenland Whale: Greenland whales were once numerous at Repulse Bay and in Roes Welcome, and Middleton (1743) records seeing a large number in Wager Inlet. Roes Welcome, during the last half on the nineteenth century, was a favourite haunt of the whalers, especially Americans, who often wintered at Fullerton Harbour and had a look-out station at Whale Point. They also hunted and occasionally wintered, at Repulse Bay. Some probably went well up the west side of Foxe Basin, certainly they visited Lyon Inlet, though I know no record of whalers reaching Igloodik. One whale was killed and secured by the Eskimos at Lyon Inlet in 1940. As far as I know, the last one killed previous to that was a very small one in 1923 (Freuchen, 1935, p. 274). Richardson (1825, p. 336) says that "the Hudson's Bay Company once carried on the whale fishery in the Welcome, but not finding it profitable, they have abandoned it many years." This presumably refers to the last part of the eighteenth century, and may have resulted from the numbers of whales seen by the expeditions of Middleton, and of Moor and Smith.

References Cited

- Anderson, R.M.—1935. Mammals of the Eastern Arctic and Hudson Bay. Canada's Eastern Arctic. Dept. of the Interior pp. 67-93.
- Bennett, P.M.—1940. British Canadian-Arctic Expedition. Geographical Journal. Vol. 95, pp. 109-120.
- Birkett-Smith, K.—1933. Geographical Notes on the Barren Grounds. Report of the Fifth Thule Expedition. Vol. 1, No. 4.
- Boas, F.—1888. The Central Eskimo. Annual Report of the Bureau of Ethnology. Washington, No. 6, pp. 399-669.
- Brown, W.E.—1936. Man and Machine against the Arctic. Beaver, Outfit 267, No. 2, pp. 26-30.
- Christy, M.—1894. Voyages of Captain Luke Foxe of Hull, and Captain Thomas James of Bristol, in Search of a North-west Passage in 1631-32, with Narratives of Earlier North-west Voyages.
- Comer, G.—1906. Whaling in Hudson Bay with notes on Southampton Island. Boas Anniversary Volume, pp. 475-484.
- 1920. Proceedings of the Royal Commission to Investigate Reindeer and Musk-ox Industries. Mss. in the Library of the Northwest Territories Branch of the Dept. of Mines and Resources.
- Dobbs, A.—1744. An Account of the Countries Adjoining Hudson Bay in the North-west Part of America—with an Abstract of Captain Middleton's Journal.
- Drage, T.S. (Clerk of the California)—1748. An Account of a Voyage for the Discovery of a North-west Passage by Hudson Straits to the west and south ocean of America. Performed in the years 1746-47 in the ship California.
- Ellis, H.—1748. A Voyage to Hudson Bay by the Dobbs Galley and California in the years 1746, 1747, for the discovery of a north-west Passage.
- Freuchen, P.—1935. Degerbol M. & Freuchen, P. Mammals. Report of the Fifth Thule Expedition, 1921-24. Vol. 2, Nos. 4, 5.
- Gilder, W.H.—1881. Schwatka's Search.
- Hall, C.F.—1879. Narrative of the Second Arctic Expedition. Edited by J. E. Nourse.
- Low, A.P.—1906. Report on the Dominion Government Expedition to Hudson Bay and the Arctic Islands on board the D.G.S. Neptune, 1903-1904.
- Lyon, G.F.—1824. The Private Journal of Captain G. F. Lyon of H.M.S. Hecla during the Recent Voyage of Discovery under Captain Parry.
- Mathiasen, T.—1927. Archaeology of the Central Eskimo. Report of the Fifth Thule Expedition. Vol. 4.
- 1928. Material Culture of the Igloodik Eskimo. Report of the Fifth Thule Expedition 1921-24. Vol. 6, No. 1.
- 1931. Contributions to the Physiography of Southampton Island. Report of the Fifth Thule Expedition 1921-24. Vol. 1, No. 2.
- 1933. Contributions to the Geography of Baffin Land and Melville Peninsula. Report of the Fifth Thule Expedition. Vol. 1, No. 3.
- Middleton, C.—1743. A Vindication of the Conduct of Captain Christopher Middleton in a late Voyage.
- Munn, T.—1922. Report of the Royal Commission to Investigate the Reindeer and Musk-ox Industries in the Arctic and sub-Arctic Regions of Canada. Appendix No. 4, pp. 55-59.
- Parry, W.E.—1824. Journal of a second Voyage for the Discovery of a North-west Passage from the Atlantic to the Pacific, performed in the years 1821-22-23 in His Majesty's Ships Fury and Hecla.
- Rae, J.—1850. Narrative of an Expedition to the Shores of the Arctic Sea in 1846-47.
- 1855. Proceedings of Dr. Rae, Chief Factor of the Hudson's Bay Company. Report from the Select Committee of the House of Commons on the Arctic Expedition, with the proceedings of the Committee. 1855, pp. 831-858.
- Rasmussen, K.—1925. The Danish Ethnographic and Geographic Expedition to Arctic America. Preliminary Report of the Fifth Thule Expedition.
- 1927. Across Arctic America. Narrative of the Fifth Thule Expedition.
- 1931. The Netsilik Eskimos. Report of the Fifth Thule Expedition 1921-24. Vol. 8, Nos. 1, 2.
- Richardson, J.—1825. Appendix to Captain Parry's Journal of a Second Voyage for the Discovery of the North-west Passage in the years 1821-22-23, pp. 202-397. Zoological Appendix No. 1, Account of the Quadrupeds and Birds.
- 1861. The Polar Regions.
- Rowley, G.—1940. The Dorset Culture of the Eastern Arctic. American Anthropologist, Vol. 42, No. 3, pp. 490-499.

EDITOR NOTE-BOOK

T. H. Manning, English explorer, educated at Harrow and Cambridge, has engaged in important exploration work in Canada. Readers will recall his "Remarks on the Physiography, Eskimo, and Mammals of Southampton Island" published in the January, 1943, issue of the Journal. A further record of his explorations is presented in this issue under the title "Notes on the Coastal District of the Eastern Barren Grounds and Melville Peninsula from Igloolik to Cape Fullerton". The accompanying maps were prepared by the Society's cartographer from sketches and notes supplied by the author and with the co-operation of the Dominion Hydrographic Service.

Dr. A. H. Lang, who has written for us "Glaciers of the Rockies and Selkirks", is a geologist on the staff of the Geological Survey of Canada, and has spent a number of years on geological explorations and mineral investigations, chiefly in British Columbia, in which province he was born. Dr. Lang holds degrees from the University of British Columbia and Princeton University. He is a Fellow of The Canadian Geographical Society and a member of the Alpine Club of Canada.

AMONGST THE NEW BOOKS

Building the Canadian Nation, by GEORGE W. BROWN (Toronto: J. M. Dent and Sons, 1942, \$2.25). This book is apparently something quite new in the way of high-school history texts. It does not present a cut and dried account of various

regions of Canada arbitrarily segregated in separate chapters, but a thoroughly integrated picture of the total development of Canada as a nation. As Dr. Brown says in his preface: "The panorama of Canada's history has many threads, but no simple easily discerned pattern. Every province, every section, every community has its own history, deserving of careful and appreciative study. Nevertheless the fact that Canada exists to-day is proof that there is a Canadian history which is greater than the sum of these particular histories."

Many a student will heartily agree. The general impression seems to be that English history is much more readily retained in the memory, if only by its succession of reigning monarchs. Not only students, but every Canadian who reads this inspiring book will find himself lifted out of a more or less confused idea of the sequence of events in our history and of their significance by Dr. Brown's clear and masterly arrangement of his material. Professor of history at the University of Toronto and deeply read in the scholarly work of Canadian historical writers, the author has added to these basic qualifications as teacher and research worker a remarkable power of condensation so that, in discussing the various stages of Canada's progress toward nationhood, he does not clog the reader's memory with a mass of detail, but keeps the threads of his story clearly in hand and all the salient points fall into their proper places with delightful vividness.

The book is divided into six parts, comprising thirty-three chapters. His numerous illustrations Professor Brown has chosen from depositories of source material such as the Dominion and Provincial Archives and has spared no pains in obtaining those directly related to the text. Reproductions of quaint old prints of, say, A Cariboo Stage-coach, or Victoria in 1858, or Backwoods Justice in Upper Canada, are interspersed with more modern views from photographs and paintings. Portraits and group pictures of Canada's famous men and women form an especially interesting collection. Most valuable, however, to our study are the maps and charts, which were, presumably, prepared by Professor Brown himself. For instance, Chapter I, "America's heroic age of maritime expansion", has a full-page map showing points at which some of the sixteenth century explorers came into contact with North and South America. Arrows on this chart do not indicate actual routes of voyages, but they

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ANNUAL MEETING

of The Canadian Geographical Society

The Society will hold its fourteenth Annual General Meeting in the Lecture Hall, Victoria Memorial Museum, Ottawa, on February 19th,* 1943, at 8:30 p.m. Immediately following the meeting Mr. J. A. Wilson, Vice-President of the Society and Director of Air Services, will deliver an illustrated address entitled "North West Passage by Air".

*Please note that date has been changed since this announcement was made in the January issue.

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CONTENTS OF THE JOURNAL FOR 1943

As announced in the January issue, the following articles are scheduled for publication during the coming year:—

*HANDICRAFT SERIES, arranged with the co-operation of Mr. J. Murray Gibbon, President of the Canadian Handicrafts Guild. This will include: CANADIAN HANDICRAFT OLD AND NEW by J. Murray Gibbon; CANADA'S MILLION AND MORE NEEDLECRAFT WORKERS by J. Murray Gibbon; WOODWORK by Mr. E. L. Wren, A.R.I.B.A.; INDIAN HANDICRAFTS FROM COAST TO COAST by Miss Alice Lighthall; HANDICRAFT IN UNIVERSITIES AND HIGH SCHOOLS by Dr. Crowell; HOME WEAVING IN CANADA by Mr. Oscar Beriau; POTTERY by Miss Ruth Home; METAL CRAFT by Mr. Percy E. Nobbs; HOOKED RUGS by Mr. Ramsay Traquair; OCCUPATIONAL THERAPY.

Membership in The Canadian Geographical Society includes 12 monthly issues of the Journal. The annual dues of \$3.00 will not only bring the Handicraft Series of some 64 or more pages, but also a wealth of information contributed by authorities, on the following topics:—

WAR FEATURES PROVIDING DOCUMENTARY RECORDS OF OUR ACTIVE SERVICES.

ALASKA HIGHWAY; BRITISH COLUMBIA BULB INDUSTRY; CENTRAL AMERICAN RAIN (CLOUD) JUNGLES; CHINA; CHANCHAN — THE HOME OF THE GREAT CHIMU (PERU); DAVID THOMPSON HIGHWAY; DEHYDRATION OF FOODS; DIAMONDS FOR VICTORY; HAWAII — THEN AND NOW INDIA; IN THE HEART OF THE COAST RANGE; IRAQ AND IRAN; JAPAN; MAPPING WESTERN CANADA—THE RED RIVER VALLEY; MINAS BASIN REGION OF NOVA SCOTIA; NEWFOUNDLAND; NORTH WEST PASSAGE BY AIR; PAN AMERICAN HIGHWAY; SUFFOLK CHURCHES; THE GEOGRAPHY OF THE MARITIMES; THE STORY OF BACON; THROUGH OLD ENGLAND'S COUNTRYSIDE; TRINIDAD — THE CROSS ROADS OF THE WORLD; WATERMILLS OF OLD ENGLAND; WESTERN MOUNTAIN FLOWERS.

*It seems scarcely necessary to point out that the above series of original articles is both unusual and invaluable and should prove of vital interest to all Canadians. Members are requested to inform their friends regarding this matter, and to suggest that they ensure receipt of the entire series by applying for Membership in the Society not later than February 20. This is all the more necessary since newsstand releases will be strictly limited in 1943.

(Continued from page V)

show how the explorers in their desire to reach the Far East kept trying to go around or through an obstacle which turned out to be two great continents. So we see, boldly outlined, the routes bearing the names of Columbus, Cabot, Hudson, Frobisher, and the rest, and the dates of their voyages from 1492 to 1611. Similar maps portray: The Geography and Indians of North America; Penetrating the Interior, showing Champlain's explorations and Indian allies; North America on the Eve of the Seven Years' War, illustrating the chapter "France Loses her American Empire"; The Siege of Quebec; British North America at the End of the Eighteenth Century. These maps with their explanatory notes are worth chapters of discussion in depicting the growth of exploration and settlement through the years.

Another great help to the memory is found on the page which precedes each section of the work entitled "Dates to Remember". Those for sections I and II begin with 1000—Lief Erickson reaches North America, and at the foot of the page we get 1763—The Peace of Paris, while part V records for 1852, Cable laid between New Brunswick and Prince Edward Island, followed by dates of many memorable events up to 1910's Establishment of the International Joint Commission.

The general plan of the book may be indicated by the sectional titles. Part 2 is The Founding of French Canada; Part 3 British North America in a Changing Empire, a particularly fascinating series of chapters including those on New Homes for the Loyalists, Fur Barons of the West, and Britain and Her Rivals on the Pacific Coast; while Part 4 covers 1800 to 1850, A Half Century of Pioneer Expansion, with its accounts of the wave of migration from overseas, the development of wheat, timber, canals, and steam, cultural beginnings, first steps towards democracy and self-government in a free Empire. Part 5 carries us from 1850 to 1914, The Dominion in the Making; and Part 6, Canada in the British Commonwealth and the World, discusses the tremendous impact of the First World War on Canada's destiny, and her development to the present time, her share in the present war, and her hopes for a post-war world.

The book is spoken of as an experiment in history texts. If so, it is a completely successful experiment. It has already been tried, in part, on some high-school classes and is considered desired reading rather than required reading. Its clear and delightful style, its skilfully organized material, the spirit of the author in his grasp of the fundamental stages of Canada's development as a nation, his stories of heroism and pioneer persistence in the face of heart-breaking obstacles and dangers cannot fail to rouse the enthusiasm of his readers and bring them to a new realization of the tremendous obligation we owe to our forefathers. To quote from the King's broadcast from Winnipeg on May 24, 1939, with which Professor Brown fittingly concludes his book: "Hold fast to all that is just and of good report in the heritage which your fathers have left to you, but strive also to improve and equalize that heritage for all men and women in the years to come. Remember that the key to all progress lies in faith, hope, and love. May God give you their support and may God help them to prevail."

F. E. FORSEY

Mobilizing Canada's Resources for War, by A. W. F. PLUMPTRE. The Macmillan Co., 1941, xxii, 306 p. \$3.00. This book amply illustrates the fact that information is readily available in Ottawa, if the searcher knows the proper sources from which to glean it. Although in Ottawa but a few weeks prior to his appointment to Washington, the writer has amassed an amazing amount of information on Canada's war finance.

Here is a survey, written in a clear, interesting manner, of the industrial, financial and labour policies of the Government in wartime. Canada's fiscal policy has been designed to prevent increases in incomes, to siphon off such increases as occur, and to eliminate increases in expenditures. This is accomplished through various wartime controls over commodities, prices and wages. Throughout the book fiscal restrictions, wage restrictions and commodity controls together with rationing and price-fixing are shown to be supplementary to one another. Each can be used more effectively and acceptably if employed in conjunction with the others.

Within these pages the principles of war organization and finance are discussed in relation to concrete problems, such as: mobilization of manpower, civilian consumption in wartime, inflation, the new price and wage ceiling, strikes, the Lease-Lend Act, etc. The workings of the Bank of Canada and Foreign Exchange Control Board are clearly drawn and how they aid in the control of finance. Indeed, Mr. Ilsey's complete "bag of tricks" is brought plainly to view for the layman to understand. This book with its statistical appendix includes much information not readily available elsewhere, and shows how Canada changed in less than two years from a peace economy into something approaching a war economy.—M. S. M.

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